

# Index

## A

\*aaS, 13. *See also* Everything as a Service

“Above the Clouds: A Berkeley View of Cloud Computing” whitepaper, 55

**Access Control Services (.NET Access Control Services, ACS)**, 39. *See also* Service Bus

in Azure Platform diagram, 6, 20  
CardSpace information card and, 259–271

defined, 239–240, 271  
.NET Services solution and, 240–242, 271

online information, 39

**Access Control solutions/Relying Parties/Service Requesters interactions**, 259

**AccountName**, for cloud storage, 29

**AccountSharedKey**, 29

**ACE (Authority-Container-Entity) model**, xxii, 41. *See also* EAV tables

**Acer Aspire One**, 9

**ACID (atomic, consistent, isolated, durable)**, 29, 30, 193. *See also* Entity Group Transactions

**ACS. See Access Control Services**  
**Action (LoginStatus property)**, 180

**Active Directory Federation Services (ADFS)**, 43, 175, 243, 244, 271, 273, 274

Geneva Server and, xxv, 244

**ADFS. See Active Directory Federation Services**

**ADO.NET Data Services (formerly Project Astoria)**, xxii, 68

**Advanced Encryption Standard. See AES**

**AES (Advanced Encryption Standard)**, 135–136  
encrypting/decrypting strings with, 136–143

**AesManaged encryption class**, 135, 136, 137

method for decrypting an encrypted string with the AesManaged encryption class (Listing 5–11), 140–141

method for encrypting plaintext UTF8 string with AesManaged encryption class (Listing 5–8), 136–137

**Affinity Group**, 21, 65

**AJAX**

AJAX-enabled ASP.NET Web pages, 221  
extensions group, 183  
RPC method and, 229  
Thumbnails2.sln and, 221, 222  
Update Panel, 221

**ALFKI entity**, 137, 138

**allowInsecureRemoteEndpoints setting**, 161, 169

**Amazon Machine Images (AMIs)**, 12, 13

**Amazon Web Services (AWS)**

Azure v., 30, 51, 115  
cloud computing and, xxi, 4, 18  
Cloud Status and, 12  
EC2, xxi, 4, 5, 11, 18, 115  
availability, 117  
egress/ingress costs, 227  
IaaS and, xxi, 61  
Oracle and, 13  
Rackspace Hosting and, 11  
S+S, 12  
start of, xxi  
uptime, 117  
virtualized runtime application platform, 13

Windows Server 2003 R2/ SQL Server 2005 support, 41

Elastic Block Store, 11, 12, 13, 18

IaaS and, 12  
PaaS and, 18  
RightScale and, 12, 51

S3, 12, 18  
AMIs/EBS snapshot backups and, 12  
availability, 117

egress/ingress costs, 227

FaaS and, 13

IaaS and, xxi

outages, 117

Rackspace Hosting and, 11

start of, xxi

uptime, 117

SimpleDB

DBaaS and, 12

EAV tables and, 12, 29, 111, 187

FaaS and, 13

UCI and, 17

**Amazon.com. See also Amazon Web Services**

CAP Theorem and, 30

MSN TV 2 and, 9

PaaS and, 18

security and, 150

**American Recovery and Reinvestment Act (ARRA)**, 121, 123

**AMIs (Amazon Machine Images)**, 12, 13

**Analysis Services (SQL Analysis Services)**, 5, 6, 20, 40

**AOL-TV**, 8

**App.config file**

(WSHttpRelayEchoSample.sln)

Listing 10–8, 286–287

Listing 10–9, 293–294

**Application as a Service**, 12. *See also* SaaS

**Application ID**, 42, 43, 44, 175, 176, 179, 184, 186

**application service providers (ASPs)**, 7, 10. *See also* SaaS

**ApplicationUserID**, 180

**ApproximateCount() (MessageQueue.ApproximateCount)**, 215

**ARRA (American Recovery and Reinvestment Act)**, 121, 123

**ASP.NET**

login controls, 152

Security Forum, 152

session state management, 169

## ASP.NET Membership Services

### **ASP.NET Membership Services,** 151–169, 186

AspProviders.dll class library,  
161–169, 186  
functions of, 152  
integrating, with WebRole project,  
170–175, 186  
“Introduction to Membership”  
online help topic, 151

### **“ASP.NET Profile Properties Overview” online help topic,** 152

### **ASP.NET Providers Sample: ASP.NET Application Providers for Windows Azure page,** 153

**AspProviderDemo.sln,** 186  
Default.aspx, 153, 154, 171,  
172, 173, 174, 175, 176,  
177, 181, 182, 186  
integration, with  
  AzureTableTestHar-  
  nessSSL.sln, 170,  
  175–186

membership-related forms  
  ChangePassword.aspx, 170,  
  172, 186  
  CreateNewWizard.aspx, 153,  
  170, 172, 186  
  Login.aspx, 170, 173, 174,  
  186  
  ManageRoles.aspx, 154, 170,  
  172, 186  
  MyProfile.aspx, 166, 170, 171,  
  186  
  MySession.aspx, 170, 172,  
  186

moving data source to cloud,  
169  
running locally, 153–156

service configuration settings for  
  remote storage endpoints  
  (Listing 6–7), 169

ServiceConfiguration.cscfg file  
  Listing 6–5, 160–161  
  settings for secure HTTPS  
  transport of Azure Tables  
  and Blobs, 169

user’s DbAdmin role assignment  
  properties (Listing 6–6),  
  163–164

web.config file  
  Azure-specific membership  
  elements in, 158–161  
  membership section  
  (Listing 6–1), 158  
  optional data services/default  
  settings  
  (Listing 6–3/6–4), 160

  role manager/profile/session  
  state sections  
  (Listing 6–2), 159

  working with, 157–158

### **AspProviders Sample,** 25

**AspProvidersDemo.sln,** 25, 153,  
165

**AspProviders.dll class library,**  
161–169, 186

  TableStorageMembershipProvider  
  class, 161–162, 163

  TableStorageProfileProvider  
  class, 164–165, 167

  TableStorageRoleProvider class,  
  162–164, 165

  TableStorageSessionProvider  
  class, 165–169

**ASPs (application service  
providers),** 7, 10. *See also*  
SaaS

**associated entities,** 190–193

**Astoria project. *See* ADO.NET  
Data Services**

**Asus Eee PC,** 9

**Atom (standard),** 21, 39

**Atom CPUs,** 9

**Atom feeds,** 283, 284, 285, 294

**Atom Syndication Format,** 68

**atomic, consistent, isolated,  
durable. *See* ACID**

**AtomPub (Atom Publishing  
Protocol),** 21, 39, 40, 68,  
79, 80, 83, 84, 190, 194,  
196

**AT&T,** 9

**auditability,** 55, 116

**audits. *See* compliance; ISO/IEC  
27001:2005 standard; SAS  
70 attestations**

**authentication/authorization. *See*  
Access Control Services;  
ASP.NET Membership  
Services; Windows Live ID  
authentication**

**Authentication.cs,** 72

**Authority-Container-Entity (ACE)  
model,** xxii, 41. *See also* EAV  
tables

**authorization/authentication. *See*  
Access Control Services;  
ASP.NET Membership  
Services; Windows Live ID  
authentication**

**autogenerated scope  
(WSHttpRelayEchoSam-  
ple.sln),**  
290–292

**AutomaticRenewal,** 287

**availability**  
  FC, 57–58

  high, 57, 60. *See also* Fabric  
  Controller

  maximizing, 117

  obstacle, 17, 55, 61, 116

**AWS. *See* Amazon Web Services**  
**Azure (Windows Azure). *See also*  
Azure OS; Azure Platform**

  Access Control Services. *See*  
  Access Control Services

  Application Templates for Visual  
  Studio. *See* templates

  auxiliary Cloud Services. *See*  
  Cloud Services

  Blob Services. *See* Blob Services  
  blobs. *See* blobs

  Cloud Fabric. *See* Cloud Fabric  
  Community Technical Previews.

*See* CTPs

  Developer Portal. *See* Developer  
  Portal

  Development Fabric. *See*  
  Development Fabric

  Development Storage. *See*  
  Development Storage

  Fabric Controller. *See* Fabric  
  Controller

  Hosted Projects, 43, 47, 185

  Hosted Services. *See* Hosted  
  Services

  Live Operating Environment, 6,  
  20, 48

  Live Services. *See* Live Services

  Log Viewer, 103–104

  Management Tools, 243

  .NET Services. *See* .NET Services

  Queue Services. *See* Queue  
  Services

  Queues. *See* queues

  SDK. *See* SDK

  Service Training Kit, 243

  SLA, 55

  SQL Services. *See* SQL Services

  Storage Accounts. *See* Storage  
  Accounts

  Storage Services. *See* Storage  
  Services

  Table Services. *See* Table  
  Services

  tables. *See* tables

  Tools for Visual Studio, xxiv, 5,  
  22, 24, 27, 35, 51. *See*  
  *also* Visual Studio

  Web Cloud Services. *See* Web  
  Cloud Services

  Workflow Services. *See* Workflow  
  Services

**Azure OS (Windows Azure  
operating system),** 5, 49–61  
  in Azure Platform diagram, 6, 20  
  infrastructure, 51–54  
  lifecycle of Azure service, 51–64

PDC 2008 and, 47  
resources, description/  
allocation, 50  
security, 54–57  
tour, 49–51  
upgrades, 54

**Azure Platform (Windows Azure Platform)**  
architecture, 19–48  
AWS v., 30, 51, 115  
Azure Services Platform v., 5  
benefits of, 42  
component diagram, 6, 20  
features, 6  
GAE v., 47, 51, 115  
IBM v., xxi  
introduction, 3–111  
moving to, risk minimization and,  
115–150  
PDC 2008 and, 47  
purpose of, 20  
Python and, 21, 51, 67  
services in, 5–6  
Sun Microsystems v., xxi  
uses for, 19

**Azure service, lifecycle of, 51–64**  
“**Azure Table Storage Services Test Harness**” **blog series,**  
29, 76, 81

**AzureBlobTest application, 33, 94**

**Azure-hosted composite application, 209**

**AzureStorageExplorer.sln, 161**

**AzureTableTestHarnessSSL.sln project, 136–143, 150**  
client-side encryption v.  
column-based server  
encryption, 146–147, 150  
decrypting ciphertext to plaintext,  
139–142  
Default.aspx page  
customizing, 171–175  
enabling special controls for  
members of DbAdmins  
and DbWriters roles  
(Listing 6–9), 172–173  
LinkButtons to emulate those  
on AspProviderDemo  
project’s Default.aspx  
(Listing 6–8), 171–172  
specifying Login.aspx as  
default page in IIS 7.0  
(Listing 6–10), 174–175  
encrypting plaintext to ciphertext,  
136–139  
encryption/decryption in  
TableStorageEntity  
instance, 142–145  
encryption’s performance hit,  
145–146

integration, with  
AspProviderDemo.sln, 170,  
175–186  
SampleWebCloudService project  
and, 136  
SSL page with a self-signed  
certificate, 129  
upgraded/chp 06 version, 170  
copying/integrating  
membership-related files,  
170–171  
customizing Default.aspx page,  
171–175

## B

**BASE (basically available, soft-state, eventual consistency), 30**

**Base64Binary-encoded representation, of session-state blob, 167, 168**

**Base64Binary-encoded signature, 195**

**basically available, soft-state, eventual consistency (BASE), 30**

**batches, 193–194**

**Battlespace Awareness, 119**

**BigTable storage system (GAE), 13, 29. See also Google App Engine**

**Binary, 30, 78**

**BinaryFormatter, 167**

**BizTalk Services, 39, 273. See also Service Bus**

**Blob Services (Azure Blob Services), 32–33, 94–111. See also OakLeaf Systems Azure Blob Services Test Harness**  
in Azure Platform diagram, 6, 20

**BlobContainer class diagram, 96**

**BlobContainerRest class diagram, 98**

**BlobProperties class diagram, 97**

**blobs (Azure Blobs), 94–111**  
AzureBlobTest application, 33, 94  
code Listings  
ASP.NET source code to open the selected file in a new window or display a file download dialog (Listing 4–25), 107  
deleting (Listings 4–28 to 4–30), 108–110  
download a file in 4,096-byte chunks to a MemoryStream and upload it in 1MB blocks to an Azure Blob Services Container (Listing 4–20), 99–102  
HTTP GET request for the 2.36MB bitmap blob from Azure Blob Storage (Listing 4–26), 107  
HTTP GET request for uploading a 2.36MB public bitmap blob from Windows Live SkyDrive (Listing 4–21), 104  
HTTP GET response for the 2.36MB bitmap blob from Azure Blob Storage (Listing 4–27), 107–108  
HTTP GET response for uploading a 2.36MB public bitmap blob from Windows Live SkyDrive (Listing 4–22), 105  
HTTP PUT request to upload a 1MB block of the 2.36MB bitmap blob to Azure Blob Storage (Listing 4–23), 106  
HTTP PUT response for a 1MB block of the 2.36MB bitmap blob uploaded to Azure Blob Storage (Listing 4–24), 106  
content types, 95–96  
Copy Blob, 109–110  
defined, 63, 111  
deleting, 108–109  
downloading  
with HTTP GET method, 104–105  
selected blob, 106–108  
Get Blob, 109–110  
late changes to, 110–111  
log blobs  
persisting to containers, 103  
viewing with utilities, 103–104  
REST API and, 25, 33, 48  
retrieving/storing, 94–111  
session-state,  
Base64Binary-encoded representation of, 167, 168  
storing/retrieving, 94–111  
unstructured data, 27  
uploading, to Storage Services, 106

**BlobStorage class diagram, 96**

**BlobStorage.cd, 96, 97**

**BlobStorage.cs, 72**

**BlobStorageEndpoint, 29**

**BlobStorageRest class diagram, 98**

**Boolean, 78, 85, 167, 180**

## Boolean operators

**Boolean operators**, 86  
**Brewer, Eric**, 30, 188  
**Brewer's conjecture**, 30, 188  
**btnDeleteAll\_Click** event handler, 201  
**btnLoadOrders\_Click** event handler, 197  
**bubble, dot-com**, 10, 11  
**bugs in large distributed systems**, 116  
**Build Events page**, 44  
**buildall.cmd**, 24  
**business interruption risk, SLAs and**, 149  
**Butrico, Maria**, 13, 14  
**bypassing obstacles, to cloud computing**, 116–127  
**Byte**, 167  
**byte arrays**, 95. *See also* blobs

## C

**C# WebAuth web site**  
added to IIS 7.x's Default Web Site, 177  
sign-in status, 178  
sign-out status, 180  
**C# wrappers, for RESTful storage/authentication operations**, 70–72  
**CaaS (Computing as a Service)**, 12  
in five-layer cloud computing model, 14  
Verizon and, xxi  
**California Senate Bill 1386 (SB 1386)**, 123, 126, 150  
**CAP Theorem**, 30, 188  
**Cardholder Information Security Program (CISP)**, 16  
**CardSpace (Windows CardSpace)**, xxv  
**CardSpace information card (Windows CardSpace information card)**, 244–270  
ACS and, 259–271  
creating, 244–259  
EchoService and, 266–270  
HTTP request and response messages (Listings 9–1 to 9–2), 249–257  
Information Card terminology, 257–259  
Service Requesters/Access Control solutions/Relying Parties interactions, 259  
WSHttpRelayEchoSample.sln and, 288–290  
**Carrara, Gianpaulo**, 56  
**Carroll, Lewis**, 16  
**CAS (Code Access Security)**, 20, 51  
**Cascading Style Sheet (CSS) styles**, 186  
**case sensitive user names**, 153  
**CCIF (Cloud Computing Interoperability Forum)**, 15, 17  
**CCIF Google Group**, 59  
**certificate issuer, Trusted Root Certificate Authorities List and**, 132–134  
**Certificates dialog (IE 8)**, 131, 132, 133, 150  
**ChangePassword**, 152  
**ChangePassword.aspx**, 170, 172, 186  
**changesets**, 193  
**changing http to https**, 130, 150  
**Char**, 167  
**Chrome, Google**, 9  
**Circuit City**, 9  
**CISP (Cardholder Information Security Program)**, 16  
**Claim**, 258  
**Claims Configuration Page**, 246, 248  
**claims transformation rules**, 261–264  
**Classmate PC design**, 9  
**Clear() (MessageQueue.Clear())**, 215  
**client wrapper class libraries, Web Cloud Services and**, 37  
**ClientServices library**, 195  
**client-side encryption, column-based server encryption v., 146–147, 150**  
**Cloud Application Layer**, 14  
**cloud computing**, 3–18  
“Above the Clouds: A Berkeley View of Cloud Computing”  
whitepaper, 55  
Amazon Web Services. *See* Amazon Web Services  
ancestry, 7–11  
benefits of, 7  
components, 15  
composable systems and, 11  
concerns. *See* obstacles  
“Defining the Cloud Computing Framework” blog post, 15  
definitions, 3–5  
Department of Defense and, 119  
EaaS and, 11–13, 18  
five-layer ontological model, 14–15  
government agencies and, 119, 150  
growth, 18  
highly composable systems and, 11  
Microsoft's competitive edge in, xxii  
military and, 119  
obstacles. *See* obstacles  
ontologies, 14–16  
“Perspectives on Cloud Computing and Standards,” 17  
popularity, xxi, 3–5, 7  
“The Potential of Cloud Computing,” xxi, xxii  
security and. *See* security  
security-intensive agencies and, 119  
“Toward a Unified Ontology of Cloud Computing” research paper, 13, 14  
**Cloud Computing Interoperability Forum (CCIF)**, 15, 17  
**Cloud Computing Interoperability Forum Google Group**, 59  
“Cloud Computing's Big Bang for Business,” xxi  
“Cloud Control” article, 16  
**Cloud Fabric (Azure Cloud Fabric)**, 44–47  
**cloud governance**, 16–18  
**cloud hosting**, 11  
**Cloud Services (Azure auxiliary Cloud Services)**, 38–42. *See also* Live Operating Environment; Live Services; .NET Services; SQL Services  
in Azure Platform diagram, 6, 20  
**Cloud Software Environment Layer**, 14–15  
**Cloud Software Infrastructure**, 14  
**Cloud Status**, 12. *See also* Amazon Web Services; Google App Engine  
**Cloud-Book computer**, 9  
**CloudDrive Sample**, 25  
**CLR (Common Language Runtime)**  
objects, 67, 111  
support, 15, 41  
**Code Access Security (CAS)**, 20, 51  
**code Listings. See specific code Listings**  
**Cohen, Reuven**, 17, 59  
**colocation facilities**, 11  
**column-based server encryption, client-side encryption v., 146–147, 150**  
**Committee of Sponsoring Organizations of the Treadway Commission (COSO) framework**, 121

- Common Language Runtime. See CLR**
  - Common Operating Picture, 119**
  - Community Technical Previews. See CTPs**
  - comparison operators, 86**
  - compliance (regulatory compliance), 119–127**
    - California Senate Bill 1386, 123, 126, 150
    - data privacy laws (Massachusetts/Nevada), 126–127
    - GLBA, 119, 120, 148, 149, 150
    - HIPAA, xxiv, 16, 18, 116, 119, 121–123, 147, 148, 149, 150
    - HIT, 121, 123
    - PCC-DSS, 124–126, 150
    - SOX, 18, 119, 120–121, 147, 148, 149, 150
  - composable systems and, 11**
  - Compute Only Live Services: Existing APIs account, 21**
  - Computer Security Division's Computer Security Resource Center Publications page, 18**
  - Computer Security Resource Center Publications page, Computer Security Division's, 18**
  - Computing as a Service. See CaaS**
  - confidentiality (data confidentiality), 16, 17, 29, 55, 116, 120, 123, 148, 259, 280, 293. See also obstacles**
  - Confidentiality (Information Card term), 259**
  - consistent (ACID), 29, 30, 193**
  - Consumer, 300, 301**
  - ContainerProperties class diagram, 97**
  - ContextRef, 73, 74**
  - Copy Blob, 109–110**
  - COSO (Committee of Sponsoring Organizations of the Treadway Commission) framework, 121**
  - create, retrieve, update, delete operations. See CRUD operations**
  - create, update, delete operations. See CUD operations**
  - CreateNewWizard.aspx, 153, 170, 172, 186**
  - CreateOnceContainerAndQueue(), 224**
  - createtables.cmd, 24**
  - CreateThumbnail(), 224**
    - most recent parent entities (Listing 7–9), 205–206
    - filling a DataGridView control with the child entities of a selected parent entity (Listing 7–10), 207–208
  - DataServiceUtilities, 73**
  - DataStore (GAE), 12, 111. See also Google App Engine**
  - DateTime, 30, 78, 167**
  - dbo.Membership, 157**
  - dbo.Roles, 157**
  - dbo.Sessions, 157**
  - Decimal (data type), 167**
  - decryption. See encryption**
  - dedicated server hosting, 11**
  - dedicated virtual server hosting, 11, 15**
  - Default.aspx page**
    - AspProviderDemo.sln, 153, 154, 171, 172, 173, 174, 175, 176, 177, 181, 182, 186
    - AzureTableTestHarnessSSL.sln project, 171–175
  - “Defining the Cloud Computing Framework” blog post, 15**
  - DELETE, 30, 48, 93, 94, 109, 213, 220**
  - DeleteMessage (Message-Queue.DeleteMessage), 215**
  - DeleteQueue(), 212**
  - Dell Inspiron Mini, 9**
  - denial of service attacks, 116**
  - Department of Defense, cloud computing and, 119**
  - DES (Data Encryption Standard), 135**
  - DESCryptoServiceProvider, 135**
  - DetailTable sample project. See OrderDetailTable sample project**
  - DetailType. See OrderDetailTable sample project**
  - Developer Portal (Azure Developer Portal), 21–23**
    - hosted project
      - Build Events page, 44
      - SSL page, 44
      - Summary page, 43
    - publishing projects to, 42–44
    - purpose of, 48
  - Development Fabric (DF), 25–26**
    - in Azure Platform diagram, 6, 20
    - SDK and, 23, 48
    - self-signed certificate for, 131–132
  - Development Fabric UI (DFUI), 26**
  - CreateUserWizard, 152**
  - Cristofor, Laurentiu, 147**
  - CRM (customer relationship management)**
    - Microsoft Dynamics CRM Services, 6, 10, 12
    - Salesforce.com and, xxi, 10
    - specialty ASPs and, 10
  - CRUD (create, retrieve, update, delete) operations, 71, 93, 108, 111, 142, 145, 150, 195**
  - CryptoStream, 135**
  - CryptoStream.Clear(), 137**
  - CSS (Cascading Style Sheet) styles, 186**
  - CTPs (Azure Community Technical Previews), 21**
    - GUID tokens, 21, 23, 47
    - invitation codes, 38, 42, 47, 48
  - CUD (create, update, delete) operations, 193–194. See also CRUD operations**
  - CustomerDataModel**
    - class, 76, 142
    - members (Listing 5–14), encryption/decryption of, 142–145
  - Cyber Network Defense, 119**
- D**
- Da Silva, Dilma, 13, 14**
  - DaaS (Data Storage as a Service), 11, 12, 13, 14, 18, 40**
  - data availability. See availability**
  - data confidentiality. See confidentiality**
  - data egress (downloaded response messages) costs, 15, 187, 227**
  - Data Encryption Standard. See DES**
  - Data Hubs (online chapters), xxii, xxv, xxvi, 41, 48, 63**
  - data ingress (uploaded request messages) costs, 15, 187, 196, 227**
  - Data Protection Application Programming Interface (DPAPI) security, 136, 273**
  - Data Service Query, 86**
  - Data Storage as a Service (DaaS), 11, 12, 13, 14, 18, 40**
  - data transfer bottlenecks, 116**
  - databases. See RDBMSs; SADB; tables**
  - DataGridView control, 205–208. See also GridView control**
    - filling a DataGridView control with a specified number of the

## Development Storage (DS)

**Development Storage (DS),**  
27–34. *See also* Storage Services  
in Azure Platform diagram, 6, 20  
SDK and, 23, 48

**Development Storage UI (DSUI),**  
27, 30

**DF. *See* Development Fabric**

**DFAgent.exe,** 25

**DFLoadBalancer.exe,** 25

**DFMonitor.exe,** 25

**DFSservice.exe,** 25

**DFUI (Development Fabric UI),** 26

**Digest (Information Card term),**  
259

**Digital Identity,** 258

**diskless workstations,** 7–8

**Disks**  
FC, 57, 58  
Hyper-V hypervisor, 58, 59

**DisplaySearch,** 10

**DistributedSort Sample,** 25

**Django framework,** 13. *See also*  
Google App Engine

**dot-com bubble,** 10, 11

**Double,** 30, 79, 167

**downloaded response messages.**  
*See* data egress costs

**DPAPI (Data Protection  
Application Programming  
Interface) security,** 136, 273

**DropBox,** 11

**DS. *See* Development Storage**

**DSUI (Development Storage UI),**  
27, 30

**durable (ACID),** 29, 30, 193

**Dynamics CRM Services,** 6, 10,  
12

## E

**EaaS. *See* Everything as a Service**

**EAV (Entity-Attribute-Value)  
tables. *See also* SADB;  
tables**  
ACE model and, xxii, 41  
GAE and, 13, 29, 111, 187  
SADB and, xxv  
SimpleDB and, 12, 29, 111, 187

**EBS (Elastic Block Store),** 11, 12,  
13, 18. *See also* Amazon  
Web Services

**EC2 (Elastic Computing Cloud),**  
xxi, 4, 5, 11, 18, 115. *See  
also* Amazon Web Services  
availability, 117  
egress/ingress costs, 227  
IaaS, xxi, 61  
Oracle and, 13  
Rackspace Hosting and, 11  
S+S, 12

start of, xxi  
uptime, 117  
virtualized runtime application  
platform and, 13  
Windows Server 2003 R2/ SQL  
Server 2005 support by, 41

**EchoContract.cs,** 276–278

**EchoSample solution  
(EchoService.sln),** 276–285,  
294. *See also*  
WSHttpRelayEchoSample.sln  
analyzing, 276–285  
consuming (Listing 10–6),  
282–286  
inspecting EchoCon-  
tract.cs/EchoService.cs/Program.cs  
(Listings 10–1 to 10–4),  
276–278  
making services publicly  
discoverable (Listing 10–7),  
283–285  
verifying service user’s  
credentials with code  
(Listing 10–5), 278–281  
WSHttpRelayEchoSample.sln v.,  
286–287

**EchoService.cs,** 276–278

**EchoService.sln. *See* EchoSample  
solution**

**Eclipse tools,** 13, 21, 51

**EDI (electronic data interchange),**  
16

**Edit Profile Information/Manage  
Relying Party Policies page,**  
247

**egress costs. *See* data egress  
costs**

**EGTs. *See* Entity Group  
Transactions**

**EHRs (electronic health records),**  
121, 123

**Elastic Block Store (EBS),** 11, 12,  
13, 18. *See also* Amazon  
Web Services

**electronic data interchange (EDI),**  
16

**electronic health records (EHRs),**  
121, 123

**Ellis, Nigel,** 187

**Ellison, Larry,** 8

**“Enabling SSL Connections on  
Windows Azure” whitepaper,**  
131

**encryption**  
client-side encryption v.  
column-based server  
encryption, 146–147, 150  
code for encrypting and  
decrypting  
CustomerDataModel

members (Listing 5–14),  
142–145

“Database Encryption in SQL  
Server 2008 Enterprise  
Edition” technical article,  
147

decrypting ciphertext to plaintext,  
139–142

encrypting plaintext to ciphertext,  
136–139

encryption/decryption in  
TableStorageEntity  
instance, 142–145

HTTP request headers and  
payload to add an encrypted  
entity to the OakLeaf3 table  
(Listing 5–9), 138

HTTPS protocol and, 127–135,  
150

method for decrypting an  
encrypted string with the  
AesManaged encryption  
class (Listing 5–11),  
140–141

method for encrypting plaintext  
UTF8 string with  
AesManaged encryption  
class (Listing 5–8),  
136–137

performance hit, 145–146

PII in Storage Services, 135–147

response headers and payload  
from adding an encrypted  
entity to the OakLeaf3 table  
(Listing 5–10), 138–139

“SQL Server 2008: Transparent  
data encryption feature - a  
quick overview” blog post,  
147

“SQL Server 2008 TDE:  
Encryption You Can Use!”  
blog post, 147

TDE, 147, 150

**enterprise ASPs,** 10

**Enterprise Service Bus (ESB)  
model,** 39, 273–274, 294.  
*See also* Service Bus

**entities (Azure tables),** 80–94.  
*See also* tables  
adding with code, 81–82  
adding with HTTP POST, 83–85  
associated, 190–193  
deleting (Listings 4–17 to 4–19),  
93–94  
primary key values for, 187–190  
querying, 85–90  
as unit (for tables), 69  
updating (Listings 4–14 to  
4–16), 90–92

**Entity Group Transactions (EGTs)**, 85, 109, 193–194. *See also* ACID  
 ACID v., 193  
 code to add the minimum table version header to support EGTs (Listing 7–4), 194  
 requirements for, 193

**Entity-Attribute-Value tables. *See* EAV tables**

**Errors.cs**, 72

**ESB (Enterprise Service Bus) model**, 39, 273–274, 294. *See also* Service Bus

**EU Directive 95/46/EC**, 120, 123

**EU Safe Harbor regulations**, 149

**Everex**, 9

**Everything as a Service (EaaS)**, 11–13, 18  
 cloud computing and, 11–13, 18  
 defined, 13  
 HP and, 13

**Execute . . . () methods**, 90

**Exodus Communications**, 11

**“Exploiting SQL Azure Database’s Relational Features” (online chapter)**, xxii, xxv, xxvi, 41, 48, 63

## F

**FaaS (Files as a Service)**, 11, 12, 13, 14, 18, 40

**Fabric. *See* Cloud Fabric; Development Fabric**

**Fabric Controller (FC, Azure Fabric Controller)**, 57–58  
 availability, 57–58  
 diagram, 57  
 load balancing and, 49, 50, 51, 53, 60, 209  
 role of, 49, 50–51, 60

**Failure Domains**, 51, 52, 53, 60, 63, 111, 188

**“Fast, Scalable, and Secure Session State Management for Your Web Applications” article**, 169

**fate sharing/ reputation**, 116

**Fault Domains. *See* Failure Domains**

**FC. *See* Fabric Controller**

**FC Core**, 57

**Federal Cloud Infrastructure**, 17

**Federal Information Processing Standard (FIPS)**, 118, 135

**FederatedIdentity.net. *See also* CardSpace information card; Identity Lab**  
 claims transformation rules and, 261–264  
 oakleaf-acs solution and, 260–266  
 as Recognized Token Issuer, 260–261  
 Relying Party and, 247, 250, 264–266

**FederatedIdentity.pfx certificate**, 249

**Fiddler2**, 68–71, 79, 128, 141, 227, 230, 293, 300

**Files as a Service (FaaS)**, 11, 12, 13, 14, 18, 40

**FIPS (Federal Information Processing Standard)**, 118, 135

**firewalls**, 18, 54, 116, 124, 273, 275, 294, 296, 301, 307

**Firmware as a Service. *See* Haas Firmware/Hardware layer**, 14, 15

**FISMA**, 18, 119, 149

**500 (Internal Server Error)**, 300

**five-layer cloud computing model**, 14–15

**flexible properties feature (Azure tables)**, 188, 191, 208

**Flexiscale**, 12

**flow diagrams**,  
**Thumbnails\_WebRole and Thumbnails\_WorkerRole projects**  
 Thumbnails2.sln (modified project), 231, 232  
 Thumbnails.sln (original project), 222, 223, 231, 232

**Force.com. *See* Salesforce.com**

**Foreign Corrupt Practices Act**, 120

**400 (Bad Request)**, 300

**403 (Forbidden)**, 300

**409 (Conflict)**, 300

**415 (Unsupported Media Type)**, 300

**Fratto, Mike**, 16

## G

**GAE. *See* Google App Engine**

**Gartner**, 3, 8, 9, 13

**“Geneva” Beta 2**, 239, 243–244, 273

**Geneva CardSpace. *See* CardSpace**

**Geneva Framework. *See* Windows Identity Foundation**

**Geneva Server. *See* Active Directory Federation Services**

**“Geneva” Team Blog**, 244

**geolocation services**, 21, 27, 118, 153, 189

**Get Blob**, 109–110

**GET method. *See* HTTP GET**

**GetHealthStatus()**, 224

**GetMessages (MessageQueue.Queue.GetMessage[s])**, 215

**GetPhotoGalleryContainer()**, 224

**GetQueue()**, 212

**GetThumbnailMakerQueue()**, 224

**GLBA. *See* Gramm-Leach-Bliley Act**

**GoGrid**, 12, 18

**Golden, Bernard**, 117

**Google App Engine (GAE)**  
 Azure v., 47, 51, 115  
 BigTable storage system and, 13, 29  
 Cloud Application Layer and, 14  
 Cloud Status and, 12  
 DataStore, 12, 111  
 Django framework and, 13  
 EAV tables and, 13, 29, 111, 187  
 Google Trends service and, 4  
 Java and, xxi  
 outages, 117  
 PaaS, xxi, 18  
 Python and, xxi, 13, 14, 15, 59  
 SLAs, 117  
 as specialty ASP, 10  
 TaaS and, 13  
 virtualized runtime application platform and, 13  
 webapp framework and, 13

**Google.com**  
 CAP Theorem and, 30  
 Chrome, 9  
 Schmidt and, 3, 4  
 Trends service, 4

**governance, cloud**, 16–18. *See also* obstacles

**government agencies, cloud computing and**, 119, 150

**Gramm-Leach-Bliley Act (GLBA)**, 119, 120, 148, 149, 150

**Grance, Tim**, 118

**Green, Frederick**, 148

**grids**  
 displaying child entities, 207–208  
 displaying data from heterogeneous tables in, 205–208  
 displaying parent entities, 205–206

## GridView control

### **GridView control**, 33, 85, 86

- AES and, 136
  - deleting a blob
    - with code (Listing 4–28), 108–109
    - with HTTP delete request (Listing 4–29, Listing 4–30), 109
  - Page\_PreRender event handler and, 174
  - testing effect of disabling ViewState (Listing 8–25), 227–228
  - 12-entity pages for (Listing 4–8), 86–88
- Group custom claim**, 264
- GTE CyberTrust Global Root authority**, 131
- guest OS (Hyper-V hypervisor)**, 58, 59
- guest partitions (Hyper-V hypervisor)**, 58, 59
- guest VMs**, 49, 50, 53, 58, 59
- GUID (data type)**, 30, 79, 167
- GUID tokens**, 21, 23, 47
- Guthrie, Scott**, 131
- gvBlobs GridView**, 231–233

## H

- HaaS (Hardware as a Service)**, 14, 15, 18
- Hardware as a Service (HaaS)**, 14, 15, 18
- hash-based message authentication code. See HMAC**
- Health Information Technology (HIT)**, 121, 123. *See also* HIPAA
- Health Information Technology for Economic and Clinical Health Act (HITECH Act)**, 123
- Health Insurance Portability and Accountability Act. See HIPAA**
- HelloFabric Sample**, 25
- HelloWorld Sample**, 25
- hexadecimal Application ID. See Application ID**
- high scalability**, 63
- “high-level .NET wrappers,”** 71
- highly composable systems**, 11
- high-scale host**, 40, 311. *See also* Workflow Services
- HIPAA (Health Insurance Portability and Accountability Act)**, xxiv, 16, 18, 116, 119, 121–123, 147, 148, 149, 150

### **HIT (Health Information Technology)**, 121, 123. *See also* HIPAA

### **HITECH Act (Health Information Technology for Economic and Clinical Health Act)**, 123

### **HMAC (hash-based message authentication code)**, 146

### **HMAC-SHA256 algorithm**, 80, 195, 212

### **HolaServers**, 12

### **host OS (Hyper-V hypervisor)**, 58, 59

### **host partition (Hyper-V hypervisor)**, 58, 59

### **host VMs (host virtual machines)**, 49, 50, 53, 58

### **hosted project (Developer Portal)**

- Build Events page, 44
- SSL page, 44
- Summary page, 43

### **Hosted Projects (Azure Hosted Projects)**, 43, 47, 185

### **Hosted Service tokens**, 64–67, 95. *See also* Storage Accounts

### **Hosted Services (Azure Hosted Services)**, 21, 22, 29, 48, 57

### **HP**

- EaaS and, 13
- Mini, 9
- Netbooks and, 9
- NetPC and, 8

### **HRMS (human resources management system)**, 10

### **HTTP**

- debugging. *See* Fiddler2
- DELETE, 30, 48, 93, 94, 109, 213, 220
- MERGE, 30, 48, 69, 70, 90, 91, 92
- PUT, 30, 48, 212–213
- queues and, 209
- request/response headers and content, 68–70

### **HTTP GET**, 30, 32, 33, 40, 48.

- See also* blobs
- downloading blobs with, 104–105
- querying entities (Listings 4–9 to 4–13), 88–90
- request for the 2.36MB bitmap blob from Azure Blob Storage (Listing 4–26), 107
- request for uploading a 2.36MB public bitmap blob from Windows Live SkyDrive (Listing 4–21), 104
- response for the 2.36MB bitmap blob from Azure Blob

- Storage (Listing 4–27), 107–108
- response for uploading a 2.36MB public bitmap blob from Windows Live SkyDrive (Listing 4–22), 105

### **HTTP POST**, 30, 40, 48

- entities added to tables (Listings 4–6 to 4–7), 83–85
- request and response messages for creating RouterPolicy instance (Listing 11–8), 310–311
- request to insert an entity from the Northwind Orders table (Listing 7–5), 194–195
- response after uploading an entity from the Northwind Orders table (Listing 7–6), 195–196
- table creation with, 79–80

### **HTTP PUT**

- request and response messages to create a queue named “thumbnailmaker” (Listing 8–3), 212–213
- request to upload a 1MB block of the 2.36MB bitmap blob to Azure Blob Storage (Listing 4–23), 106
- response for a 1MB block of the 2.36MB bitmap blob uploaded to Azure Blob Storage (Listing 4–24), 106

### **HTTP request and response messages**

- with 10 thumbnail images with partial ViewState contents (Listing 8–23, Listing 8–24), 225, 226
- to add a simple string message to the “thumbnailmaker” queue (Listing 8–9), 216
- to add three metadata properties to the “thumbnailmaker” queue, 214
- for adding a thumbnail image with the GridView’s ViewState turned off (Listing 8–25), 227–229
- CardSpace information card (Listings 9–1 to 9–2), 249–257
- to clear all messages from the queue (Listing 8–20), 220
- to delete a queue named “thumbnailmaker” (Listing 8–5), 213–214
- to delete a single message having the designated

- PopReceipt value (Listing 8–18), 220
    - generated by WorkerRole polling (Listing 8–26, Listing 8–27), 230, 233–234
    - to inspect, rather than process, a single message (Listing 8–16), 219
    - for a list of the oakleaf3 account's queues (Listing 8–1), 211–212
    - to retrieve a single message from the selected queue (Listing 8–13), 217–218
    - to retrieve the approximate number of messages in a queue (Listing 8–11), 216–217
  - HttpPushSubscriber**, 306
  - HTTPQueueSample solution**, 300–306, 309
    - exploring code (Listings 11–5 to 11–6), 302–306
    - projects in, 300–301
    - test-driving, 300–301
  - HTTP/REST**. *See also* **REST APIs**
    - at message level, 215–221
    - at queue level, 212–215
  - HttpRouter.Publisher project** (Listing 11–7), 307–309
  - HttpRouter.sln solution**, 306–311
  - HTTPS protocol**
    - changing http to https, 130, 150
    - queues and, 209
    - with SSL encryption, 150
    - with TLS encryption, 127–135, 150
  - human resources management system (HRMS)**, 10
  - Huron project**. *See* **Data Hubs**
  - Hyper-V hypervisor**
    - components, 58–59
    - design, principles of, 60
    - diagram of, 58
    - home page, 59
    - non-Microsoft data centers and, 59–60
- I**
- iaaS (Infrastructure as a Service)**, 12. *See also* **Amazon Web Services**
    - Amazon Web Services as, 12
    - EC2 and, xxi, 61
    - in five-layer cloud computing model, 14
    - S3 and, xxi
    - virtualized runtime application platform and, 13
  - IANA (Internet Assigned Numbers Agency)**, 95
  - IBM**
    - Azure v., xxi
    - IBM T.J. Watson Research Center, 13, 14
    - Network Stations, 8
  - IDC**, 5, 13, 18, 55
  - Identity Foundation**. *See* **Windows Identity Foundation**
  - Identity Lab**. *See also* **FederatedIdentity.net**
    - Claims Configuration Page, 246, 248
    - Edit Profile Information/Manage Relying Party Policies page, 247
    - Registration page, 245
  - Identity Protocols Security Token Service (ipsts)**, 244. *See also* **Identity Lab**
  - Identity Provider (IP)**, 258
  - Identity Provider Security Token Service (IP/STS)**, 258
  - Identity Selector (IS)**, 258
  - IDisposable.Dispose**, 137
  - IDLoginStatus control**, 178–181
  - IDLoginView control**, 178, 181
  - IE 8's Certificates dialog**, 131, 132, 133, 150
  - IEC**. *See* **ISO/IEC 27001:2005 standard**
  - IETF RFC 2046**, 95, 96, 129
  - IETF RFC 2988**, 136
  - IETF RFC 4346**, 129
  - IIS 7 (Internet Information Services)**, 20, 24, 50, 59, 105, 131, 174, 176
  - IIS 7.5 Manager**, 176
  - Information Card**, 258
  - Information Card Model**, 258
  - Information Card terminology**, 257–259
  - Information Technology Laboratory (ITL)**, 17, 18, 118, 150. *See also* **NIST**
  - InformationWeek magazine poll**, 16
  - Infrastructure as a Service**. *See* **laaS**
  - ingress costs**. *See* **data ingress costs**
  - input claims**, 261
  - Instances count**, 29
  - Int**, 30, 79
  - Int16**, 167
  - Int32**, 167, 304
  - Int64**, 167
  - Integration Services (SQL Integration Services)**, 40, 80
  - Integrity (Information Card term)**, 259
  - interconnecting services with .NET Service Bus**. *See* **Service Bus**
  - Internet Assigned Numbers Agency (IANA)**, 95
  - Internet Information Services**. *See* **IIS**, 7
  - interoperability**
    - CCIF, 15, 17
    - CCIF Google Group, 59
    - Identity Metasystem Interoperability, 257
    - of Identity Protocols, 244
    - node, 17
    - standards, cloud computing and, 18
  - IntPtr**, 167
  - “Introduction to Membership” online help topic**, 151
  - invitation codes**, 38, 42, 47, 48
  - IP (Identity Provider)**, 258
  - iPhones**, 9, 12
  - ipsts (Identity Protocols Security Token Service)**, 244. *See also* **Identity Lab**
  - IP/STS (Identity Provider Security Token Service)**, 258
  - IronPython**, 13, 67
  - IronRuby**, 13
  - IS (Identity Selector)**, 258
  - ISO/IEC 27001:2005 standard**, xxiii, 55, 148–149, 150
  - isolated (ACID)**, 29, 30, 193
  - issuer of certificate, Trusted Root Certificate Authorities List and**, 132–134
  - ITL**. *See* **Information Technology Laboratory**
  - IT-Related Risk**, 117–118
- J**
- JavaStations**, 8
  - JungleDisk**, 11
- K**
- King Report on Corporate Governance for South Africa**, 120
  - Kubic, Chris**, 119
  - Kundra, Vivek**, 118
- L**
- latency**, 29
  - Lawrence, Eric**, 68, 69

**Liberate Technologies**, 8  
**lifecycle of Azure service**, 51–54  
**Limog (LINQ in-Memory Object Generator)**, 81, 190, 191  
**LINQ in-Memory Object Generator (Limog)**, 81, 190, 191  
**LINQ SQO**. *See* **LINQ Standard Query Operators**  
**LINQ Standard Query Operators (LINQ SQO)**, 31, 85  
 join, 189, 190  
 Take(*n*), 189, 208  
**LINQ to REST (LINQ to ADO.NET Data Services)**, 68, 85, 88, 89, 111, 205  
**Linthicum, David**, 13, 15  
**Linux**, 8, 9, 13  
**ListContainersResult class**  
 diagram, 98  
**listing queues**, 211–212  
**Listings**. *See* **specific code Listings**  
**ListQueues() (Message-Queue.ListQueues)**, 211  
**“Litware HR on SSDS” tutorial**  
 blog posts, 57  
**Live Operating Environment (LOE, formerly MOE)**, 6, 20, 48  
**Live Services**, 6, 21  
 in Azure Platform diagram, 6, 20  
 Live Framework: CTP, 21, 22, 35  
 Live Services: Existing APIs  
 projects, 21, 151, 175, 176, 183  
**LiveIDSampleCloudService.sln**  
 project, 177, 181–186  
**load balancing**  
 FC and, 49, 50, 51, 53, 60, 209  
 PartitionKey and, 187, 208  
 Service Bus and, 39  
**locality, Azure tables and**, 188, 208  
**local-market ASPs**, 10  
**lock-in**, 16, 17, 18, 55, 59, 60, 61, 116. *See also* **obstacles**  
**Lodin, Bill**, 103, 104  
**LOE (Live Operating Environment, formerly Mesh Operating Environment)**, 6, 20, 48  
**log blobs**. *See also* **blobs**  
 persisting to containers, 103  
 viewing with utilities, 103–104  
**Log Viewer (Azure)**, 103–104  
**LoggedInLiveID**, 180  
**Login (login control)**, 152  
**login controls, ASP.NET**, 152  
**Login.aspx**, 170, 173, 174, 186  
**LoginName**, 152  
**LoginStatus**, 152  
**LoginView**, 152

**London Stock Exchange Combined Code**, 120  
**Long (data type)**, 30, 79

## M

**MaaS (Monitoring as a Service)**, 12  
**magic strings**, 67  
**MakeCert.exe**, 131, 134, 135, 150  
**managed hosting**, 11  
**Management Studio (SQL Server)**, 30, 31, 157  
**Management Tools, Azure**, 243  
**ManageRoles.aspx**, 154, 170, 172, 186  
**“Managing Authorization Using Roles” online help topic**, 152  
**“Managing SQL Azure Database Accounts, Databases, and Data Hubs” (online chapter)**, xxii, xxv, xxvi, 41, 48, 63  
**Marx, Steve**, 85, 110, 194, 222, 229–230  
**Massachusetts data privacy laws**, 126–127  
**MasterCard’s Site Data Protection program**, 16  
**maximizing availability**, 117  
**McNerney, Charlie**, 55  
**Media Players**, 9  
**Mell, Peter**, 118  
**Member Service Providers (MSPs)**, 16  
**MERGE**, 30, 48, 69, 70, 90, 91, 92  
**mesh**, 9  
**Mesh Operating Environment (MOE)**, 6. *See also* **Live Operating Environment**  
**Mesh services**, 22, 35, 48  
**Message class**, 210  
**message level, HTTP/REST at**, 215–221  
**MessageQueue**, 210  
**MessageQueue.ApproximateCount()**, 215  
**MessageQueue.Clear()**, 215  
**MessageQueue.DeleteMessage()**, 215  
**MessageQueue.GetMessage[s]()**, 215  
**MessageQueue.ListQueues()**, 211  
**MessageQueue.PeekMessage[s]**, 215  
**MessageQueue.PutMessage**, 215  
**MessageReceivedEventHandler**  
 delegate, 210  
**messages**. *See also* **HTTP request and response messages; queues; Service Bus**  
 in queues, 209–235  
 adding, 215, 216  
 clear, 215, 220–221  
 delete, 215, 220  
 peek at, 215, 219  
 retrieve approximate number, 215, 216–217  
 retrieve single message, 215, 217–219  
 Service Bus and, 275–276  
 Service Bus Queues and, 294, 296–306, 312  
 Service Bus Routers and, 294, 306–311, 312  
**metalanguage (ML)**, 116, 117  
**Microsoft Dynamics CRM Services**, 6, 10, 12  
**Microsoft Exchange Online**, 12  
**Microsoft Identity Lab**. *See* **Identity Lab**  
**Microsoft Live SkyDrive**. *See* **SkyDrive**  
**Microsoft Office Live**, 12  
**Microsoft Secure Server Authority**, 130, 131  
**Microsoft SharePoint Online**, 12  
**Microsoft Visual Studio**. *See* **Visual Studio**  
**migrating to Azure Platform, risk minimization and**. *See* **risk minimization**  
**military, cloud computing and**, 119  
**MIME (Multipurpose Internet Mail Extension) types**, 11, 34, 95  
**MIX 08 conference**, 40  
**MIX 09 conference**, 41, 187  
**ML (metalanguage)**, 116, 117  
**MOE (Mesh Operating Environment)**, 6. *See also* **Live Operating Environment**  
**Monitoring as a Service (MaaS)**, 12  
**Mosso division**, 11. *See also* **Rackspace Hosting**  
**moving to Azure Platform, risk minimization and**. *See* **risk minimization**  
**MSN TV 2**, 8, 9  
**MSPs (Member Service Providers)**, 16  
**Multipurpose Internet Mail Extension types**. *See* **MIME types**  
**multitenancy**, 56–57  
**MyProfile.aspx**, 166, 170, 171, 186  
**MySession.aspx**, 170, 172, 186

**N**

**NAC (Network Access Control)**, 54

**Nakashima, Jim**, 72, 131

**named byte arrays**, 111

**named pipes**, 21

**NAT (Network Address Translation) devices**, 273, 275, 294, 296, 307

**National Bureau of Standards. See NIST**

**National Institute of Standards and Technology. See NIST**

**NC (Network Computer) concept**, xxiii, 7–8

**NCI (Network Computers, Inc.)**, 8

**Negroponete, Nicholas**, 9

**.NET 4**, xxii, xxiii, xxv, 40, 271, 295. *See also* Workflow Services

**.NET Access Control Services. See Access Control Services**

**.NET Client Library for ADO.NET Data Services**, 31

**.NET CLR. See CLR**

**.NET primitive types**, 167

**.NET Service Bus. See Service Bus**

**.NET Services**, 5, 6, 38–40. *See also* Access Control Services; Service Bus; Workflow Services

in Azure Platform diagram, 6, 20

purpose of, 48, 271

Workflow Services. *See* Workflow Services

**.NET Services SDK. See also EchoSample solution; WSHttpRelayEchoSample.sln**

installing, 242–244

Service Bus and, 275–276

**.NET Services solution**

ACS and, 240–242, 271

Service Bus and, 274–275

**Netbooks**, 7, 9–10

**NetChannel**, 8

**NetPC**, 8

**Network Access Control (NAC)**, 54

**Network Address Translation (NAT) devices**, 273, 275, 294, 296, 307

**Network Computer (NC) concept**, xxiii, 7–8

**Network Computers, Inc. (NCI)**, 8

**network interface cards (NICs)**, 58, 59

**Network Stations (IBM)**, 8

**“The Network is the Computer” motto**, 8

**Nevada data privacy laws**, 126–127

**New Project dialog (Visual Studio)**, 35, 178

**“New Storage Feature: Signed Access Signatures” blog post**, 110

**NICs (network interface cards)**, 58, 59

**NIST (National Institute of Standards and Technology)**

AES and, 135

federal cloud computing standards, 17–18, 118–119, 150

*Federal Cloud Infrastructure*, 17–18

ITL and, 17, 18, 118, 150

IT-Related Risk, 117–118

Special Publications, 18, 118–119, 123

**node interoperability**, 17

**non-proprietary security features**, 17, 18

**Northwind Customer’s table**, 30, 31, 42, 81, 136, 150, 189, 194. *See also* AzureTableTestHarnessSSL.sln project

**Northwind Order Details table**, 189, 190, 194, 204, 208

**Northwind Orders table**, 189, 194, 208. *See also* OrderTable sample project

HTTP POST request to insert an entity from the Northwind Orders table (Listing 7–5), 194–195

HTTP POST response after uploading an entity from the Northwind Orders table (Listing 7–6), 195–196

**NumericType.MaxValue - NumericPropertyValue calculations**, 189, 198, 208. *See also* PartitionKey values; RowKey values

**O**

OakLeaf CA, 128, 134, 135

**OakLeaf Hosted Service**, 80, 81

**OakLeaf Systems Azure Blob Services Test Harness**, 33, 42

**staging deployment of**, 47

**OakLeaf Systems Azure Table Services Sample Project**, 29

code, 31

Default.aspx page, 32

Northwind Customers table’s records and, 42

object initialization code and, 42

production version, 31

structure, 31

**OakLeaf3 table**

HTTP request and response messages for a list of the oakleaf3 account’s queues (Listing 8–1), 211–212

HTTP request headers and payload to add an encrypted entity to the OakLeaf3 table (Listing 5–9), 138

request headers for the first 12 entities from the OakLeaf3 table (Listing 5–12), 141

response headers and payload from adding an encrypted entity to the OakLeaf3 table (Listing 5–10), 138–139

response headers for the first of 12 encrypted Entities from the OakLeaf3 table (Listing 5–13), 141–142

**oakleaf-acs solution**, 260–266

**Obama administration**, 17, 118, 121, 123

**OBAs (Office Business Applications)**, 6, 10

**object ID**, 187, 188

**object initialization code**, 42

**Object Model (FC)**, 57, 58

**obstacles (to cloud computing)**, 16–18. *See also* risk minimization

availability, 17, 55, 61, 116

bypassing, 116–127

data confidentiality/auditability, 55, 116

lock-in, 16, 17, 18, 55, 59, 61, 116

privacy, 16–18

security, 16–18, 55, 61, 116

“Top 10 Obstacles for Growth of Cloud Computing”, 55, 116

**octets**, 96, 111, 259

**Office Business Applications (OBAs)**, 6, 10

**Office Live**, 12

**OLPC (One Laptop per Child) program**, 9

**One Laptop per Child (OLPC) program**, 9

**online chapters/source code**, xxii, xxv, xxvi, 41, 48, 63

**ontologies, cloud computing**, 14–16

**open services**, 14

**Oracle**

EC2 and, 13  
 NC concept, xxiii, 7–8  
 Sun Microsystems and, xxi

**ORDER BY**, 146

**OrderDetailTable sample project**, 189

- associated entities, 190–193
- code to define the
  - OrderDetailDataModel class for the OrderDetailTable child table (Listing 7–2), 191
- code to define the
  - OrderDetailType class for the OrderDetailTable child table (Listing 7–3), 191–192
- code to selectively delete
  - OrderTable and DetailTable or OrderDetailTable entities (Listing 7–8), 201–204
- code to selectively upload
  - OrderType and DetailType or OrderDetailType entities to Azure Table(s) (Listing 7–7), 197–201

**OrderDetailType**. *See* **OrderDetailTable sample project**

**OrderTable sample project**, 189

- associated entities, 190–193
- code to define the
  - OrderDataModel class for the OrderTable parent table (Listing 7–1), 190–191
- code to selectively delete
  - OrderTable and DetailTable or OrderDetailTable entities (Listing 7–8), 201–204

**OrderType**. *See* **OrderDetailTable sample project**

**output claims**, 261

**OX-1 model**, 9

**Ozmo**, 12

**Ozzie, Ray**, xxi, xxii

**P**

**P2P.wrox.com**, xxvii

**PaaS (Platform as a Service)**. *See also* **Amazon Web Services; Google App Engine; Salesforce.com**

- AWS, 18
- in five-layer cloud computing model, 14
- GAE, xxi, 18
- Salesforce.com, 14–15

**Pace, Eugenio**, 56, 57

**packages**, 25, 44, 45, 46

**Page\_PreRender event handler**, 174

**Page\_PreRender() event handler**, 224

**“Paging Over Data in Windows Azure Tables” blog post**, 85

**Pallman, David**, 161

**ParameterValidator**, 73

**partition strategy, Azure tables and**, 187–190, 208

**PartitionKey values**, 30

- choosing, 188–189
- load balancing and, 187, 208
- NumericType.MaxValue*
  - NumericPropertyValue* calculations, 189, 198, 208
- partition strategy and, 187–190, 208
- role of, 187
- scalability and, 164, 187–190, 208

**Password-Based Key Derivation Function (PBKDF2)**, 136, 137, 140

**PasswordRecovery**, 152

**Payment Card Industry (PCI)**, 16

**PBKDF2 (Password-Based Key Derivation Function)**, 136, 137, 140

**PCAOB (Public Company Accounting Oversight Board)**, 121

**PCC-DSS (Payment Card Industry-Data Security Standard)**, 124–126, 150

**PCI (Payment Card Industry)**, 16

**PCI SAQ**, 125–126

**PDC**. *See* **Professional Developers Conference**

**PeekLockConsumer**, 301

**PeekMessages() (Message-Queue.PeekMessage[s])**, 215

**performance unpredictability**, 116

**performance/scalability optimization, of Azure tables**, 187–208

**perimeter security**, 54

**Perl**, 175

**Perry, Giva**, 13

**personally identifiable information**. *See* **PII**

**PersonalWebSite Sample**, 25

**“Perspectives on Cloud Computing and Standards,”** 17

**.pfx files**, 132, 133, 135

**PHI (Protected Health Information)**, 122–123, 147

**Photo Gallery Azure Queue Services Test Harness**, xxv, 34. *See also* *Thumbnails2.sln; Thumbnails.sln*

**PHP**, 21, 51, 67, 175

**PII (personally identifiable information)**, 123, 136, 137, 141, 142, 147, 150

- encryption of, in Storage Services, 135–147

**PIPEDA**, 149

**pipes, named**, 21

**PKCS (Public-Key Cryptography Standards)**, 136

**PKI (Public Key Infrastructure)**, 135

**Platform as a Service**. *See* **PaaS**

**PopReceipt value**, 215, 218, 220

**portal**. *See* **Developer Portal**

**POST**. *See* **HTTP POST**

**“The Potential of Cloud Computing,”** xxi, xxii

**PowerShell**, 24, 25, 243

**Primary Access Key**, 66

**primary key values, for entities**, 187–190

**primitive types, .NET**, 167

**privacy**, 16–18. *See also* *compliance; confidentiality; obstacles*

**private cloud**, 12

**Professional Developers Conference (PDC)**

- 2008, 5, 41, 47, 51
- 2009, 20, 50

**profiles, ASP.NET role management features and**, 152–153

**Program.cs**

- inspecting, 276–278
- verifying service user’s credentials and, 278–281

**Project Astoria**. *See* **ADO.NET Data Services**

**Project Huron**. *See* **Data Hubs**

**Project RedDog**, 5

**ProjectName.cspkg**, 44, 45. *See also* *ServiceConfiguration.cscfg* file

**Proof-of-Possession**, 259

**Protected Health Information (PHI)**, 122–123, 147

**Public Company Accounting Oversight Board (PCAOB)**, 121

**Public Company Accounting Reform and Investor Protection Act of 2002**. *See* **Sarbanes-Oxley Act**

**Public-Key Cryptography Standards (PKCS)**, 136**Publisher**, 306**PUT**, 30, 48, 212–213**Put Blob operation**, 32**Put Message operation**, 34**PutMessage (MessageQueue.PutMessage)**, 215**Python**

Azure and, 21, 51, 67

GAE and, xxi, 13, 14, 15, 59

Windows Live ID Web

Authentication SDK 1.2, 175

**Q****query operators**, 86**querying entities**, 85–90**Queue Services (Azure Queue Services)**, 33–34, 71, 209–235

in Azure Platform diagram, 6, 20

Photo Gallery Azure Queue

Services Test Harness, xxv, 34

**Queue.cs**, 72, 210, 212**QueueManagementClient class**, 296–300**QueuePolicy class**, 304–305**QueueProperties**, 210**QueueRest**, 210**queues (Azure Queues)**. *See also* **Service Bus Queues; Thumbnails2.sln; Thumbnails.sln**

code Listings

add three metadata properties to the “thumbnailmaker” queue (Listing 8–8), 215

clearing all messages from a queue (Listing 8–21), 221

create a queue and add three simple string messages to it (Listing 8–10), 216

create a queue named “thumbnailmaker” (Listing 8–4), 213

delete a queue named “thumbnailmaker” (Listing 8–6), 214

delete a single message with the specified PopReceipt value in a designated queue (Listing 8–19), 220

HTTP PUT request and response messages to create a queue named “thumbnailmaker” (Listing 8–3), 212–213

inspect a single message in a designated queue (Listing 8–17), 219–220

list queues in the storage account specified in the ServiceConfiguration.cscfg file (Listing 8–2), 212

retrieve a single message from a designated queue (Listing 8–14), 218

retrieve and process a single message as it arrives in the queue (Listing 8–15), 218–219

retrieve the approximate number of messages in a specified queue as an integer (Listing 8–12), 217

creating, 210–221

with specified storage account, 212–213

defined, 27, 63

diagram of, 210

HTTP request and response messages

to add a simple string message to the “thumbnailmaker” queue (Listing 8–9), 216

to add three metadata properties to the “thumbnailmaker” queue, 214

to clear all messages from the queue (Listing 8–20), 220

to delete a queue named “thumbnailmaker” (Listing 8–5), 213–214

to delete a single message having the designated PopReceipt value (Listing 8–18), 220

to inspect, rather than process, a single message (Listing 8–16), 219

for a list of the oakleaf3 account’s queues (Listing 8–1), 211–212

to retrieve a single message from the selected queue (Listing 8–13), 217–218

to retrieve the approximate number of messages in a queue (Listing 8–11), 216–217

HTTP/HTTPS protocols and, 209

HTTP/REST at message level, 215–221

at queue level, 212–215

listing of, 211–212

messages in

adding, 215, 216

clear, 215, 220–221

delete, 215, 220

peek at, 215, 219

retrieve approximate number, 215, 216–217

retrieve single message, 215, 217–219

messaging with, 209–235

processing, 210–221

purpose of, 209, 234

queue-related classes/event handlers, 210, 211

REST API, 25, 33, 48, 209, 234

thumbnailmaker. *See* thumbnailmaker queue**QueueStorage**, 210**QueueStorageEndpoint**, 29**QueueStorageRest**, 210**QueueSubscriber**, 306**QuickBase RDBMS**, 10**R****Rackspace Hosting**, 11, 18**Rao, Leena**, xxi**RC2CryptoServiceProvider**, 135**RDBMSs (relational database management systems)**, 12. *See also* DaaS; RDBMSs

ACID and, 29, 30

DaaS and, 12

QuickBase RDBMS, 10

scaling up and, 29

**Recognized Token Issuer**, 260–261**Red Queen principle**, 15, 16**RedDog project**, 5**regulatory compliance**. *See* **compliance****relational database management systems**. *See* **RDBMSs****Relying Parties/Access Control solutions/Service Requesters interactions**, 259**Relying Party (RP)**, 247, 250, 258, 264–266**Relying Party Security Token Service (RP/STS)**, 258**Remote Procedure Call (RPC)**, 229**Replication system (FC)**, 57, 58**Reporting Services (SQL Reporting Services)**, 5, 6, 20, 40**Representational State Transfer APIs**. *See* **REST APIs****reputation/fate sharing**, 116**request headers for the first 12 entities from the OakLeaf3 table (Listing 5–12)**, 141

## response headers

### response headers

to establish an SSL connection for Tables (Listing 5-6/Listing 5-7), 130-131, 134-135

establishing TLS connection for WebRole with certificate (Listing 5-3), 128-129

for the first of 12 encrypted Entities from the OakLeaf3 table (Listing 5-13), 141-142

and payload from adding an encrypted entity to the OakLeaf3 table (Listing 5-10), 138-139

**res.Redirect()**, 186

**REST (Representational State Transfer) APIs**, 67-72. *See also* HTTP/REST; LINQ to REST

blobs and, 25, 33, 48

C# wrappers for, 70-72

LINQ to REST, 68, 85, 88, 89, 111, 205

queues and, 25, 33, 48, 209, 234

tables and, 25

**RestBlobStorage.cd file**, 98

**RestBlobStorage.cs**, 72

**RestHelpers.cs**, 72

**RestQueue.cs**, 72

**retrieving and storing blobs**, 94-111

**RetryProperties class diagram**, 97

**RFC 2046**, 95, 96, 129

**RFC 2988**, 136

**RFC 4346**, 129

**RightScale**, 12, 51. *See also* Amazon Web Services

**RijndaelManaged**, 135-136

**risk minimization (moving to Azure Platform)**, 115-150. *See also* compliance; obstacles

bypassing cloud computing obstacles, 116-127

encrypting PII in Storage Services, 135-147

HTTPS with TLS, 127-135

**Robinson, David**, 41

**Robison, Shane**, 13

**role instances, health of**, 53-54

**RoleEntryPoint**, 36

**RoleException**, 36

**RoleManager**, 36

**roles, ASP.NET role management features and**, 152-153

**RoleStatus**, 36

**Root Certificate Authorities**, 127, 128, 131, 132, 133, 134-135

**RouterPolicy instance**, 309-311

**RowKey values**, 30, 190, 208. *See also* PartitionKey values

**NumericType.MaxValue** - **NumericPropertyValue** calculations, 189, 198, 208

unique, 188, 192, 208

**RP. *See* Relying Party**

**RPC (Remote Procedure Call)**, 229

**RP/STS (Relying Party Security Token Service)**, 258

**Ruby**, 21, 39, 51, 67, 175, 243, 275

**rundevstore.cmd**, 24, 25, 27, 29

## S

**S3 (Simple Storage Service)**, 12, 18. *See also* Amazon Web Services

AMIs/EBS snapshot backups and, 12

availability, 117

egress/ingress costs, 227

FaaS and, 13

IaaS and, xxi

outages, 117

Rackspace Hosting and, 11

start of, xxi

uptime, 117

**SaaS (Software as a Service)**, 12

Application as a Service, 12

ASPs and, 10

in five-layer cloud computing model, 14

Salesforce.com, xxi

**SADB (SQL Azure Database—formerly SSDS and SDS)**, xxii. *See also* SQL Services

CTP, xxii, xxv, xxvi, 48

features, 41

online chapters

“Exploiting SQL Azure Database’s Relational Features,” xxii, xxv, xxvi, 41, 48, 63

“Managing SQL Azure Database Accounts, Databases, and Data Hubs,” xxii, xxv, xxvi, 41, 48, 63

SDS and, xxv, 48, 63, 147, 187

SQL Server 2008 and, 48, 187

SSDS and, xxv, 40, 41, 42, 56

tables v., 187

v1 private CTP account, 42

**Safe Harbor regulations, EU**, 149

**Salesforce.com**

Apex “on-demand” programming language, 14

Cloud Application Layer, 14

CRM capabilities, xxi, 10

firewalls and, 54

governance issues and, 16

PaaS, 14-15

SaaS, xxi, 12, 14

S+S, 12

**SAML (Security Assertion Markup Language) tokens**, 239, 244, 271

**“Sample Code for Batch Transactions in Windows Azure Tables” blog post**, 194

**“Sample Code for New Windows Azure Blob Features” blog post**, 110

**SampleWebCloudService project**, 28-29, 30, 37, 70. *See also* AzureTableTestHarnessSSL.sln project

**SAQ (PCI Self-Assessment Questionnaire)**, 125-126

**Sarbanes-Oxley Act (SOX)**, 18, 119, 120-121, 147, 148, 149, 150

**SAS 70 (Statement of Auditing Standards) attestations**, xxiii, 55, 148, 149, 150

**SB. *See* Service Bus**

**SB 1386. *See* California Senate Bill 1386**

**SBQs. *See* Service Bus Queues**

**SBRs. *See* Service Bus Routers**

**SBS. *See* Service Bus**

**SByte**, 167

**scalability**

high, 63

PartitionKey values and, 164, 187-190, 208

/performance, Azure tables and, 187-190, 208

**“Scalability and Cost Issues with Windows Azure Web and WorkerRole Projects - Live Demo” OakLeaf blog post**, 229

**scaling Azure Table and Blob storage. *See* blobs; tables**

**scaling out**, 29

**scaling quickly**, 116

**scaling up**, 29

**Schmidt, Eric**, 3, 4

- scopes**
  - autogenerated,
    - WSHttpRelayEchoSample.sln and, 290–292
  - defined, 260, 261
- SDK (Azure Software Development Kit)**, 5, 6, 19. *See also* WLID Web Authentication SDK 1.2
  - AspProvidersDemo.sln, 25, 153, 165
  - Azure Platform diagram and, 6, 20
  - DF and, 23, 48
  - download, 24
  - DS and, 23, 48
  - installing, 24
  - sample applications, 24–25
- SDP (Site Data Protection) program**, 16
- SDS (SQL Data Services)**, xxv, 5, 41, 48, 63, 147, 187. *See also* SADB
- Search Engine Strategies Conference**, 3
- SEC (Securities and Exchange Commission)**, 121
- Secondary Access Key**, 66
- Second-Level Address Translation (SLAT)**, 60
- Secure Sockets Layer. *See* SSL**
- Securities and Exchange Commission (SEC)**, 121
- security. *See also* ASP.NET Membership Services; obstacles; risk minimization; SSL; TLS; Windows Live ID authentication**
  - Azure OS, 54–57
  - cloud computing, 16–18, 55, 61, 116
  - DPAPI, 136, 273
  - non-proprietary security features, 17, 18
- Security Assertion Markup Language (SAML) tokens**, 239, 244, 271
- Security Token Service (STS)**, 239, 243, 258, 261, 264, 271. *See also* Access Control Services
- security-intensive agencies, cloud computing and**, 119
- SecurityMode enum**, 293
- Self-Assessment Questionnaire (PCI SAQ)**, 125–126
- self-issued CardSpace card (WSHttpRelayEchoSample.sln)**, 288–290
- self-signed certificate**, 131–132
- Senate Bill 1386. *See* California Senate Bill 1386**
- Sender**, 300, 301
- server virtualization**, 49, 58–60
- Service Bus (.NET Service Bus, SB)**, 39–40, 48, 273–294. *See also* Access Control Services; EchoSample solution; Queue Services; Workflow Services
  - in Azure Platform diagram, 6, 20
  - BizTalk Services and, 39, 273
  - defined, 294
  - EchoSample solution, 276–285, 294
  - ESB and, 39, 273–274, 294
  - features, 273–274
  - load balancing and, 39
  - messaging fabric, 275–276
  - .NET Services SDK and, 275–276
  - .NET Services solution and, 274–275
  - online information, 40
  - purpose of, 39
  - WCF and, 39, 273
  - WSHttpRelayEchoSample.sln, 285–294
- Service Bus Queues (SBQs)**, 295, 296–300, 312
  - creating (Listings 11–1 to 11–4), 296–300
  - HTTPQueueSample solution and, 300–306, 309
  - QueueManagementClient class and, 296–300
  - SBRs and, 307
- Service Bus Routers (SBRs)**, 295, 306–311, 312
  - component relationships, 307
  - HttpRouter.sln solution and, 306–311
  - RouterPolicy instance and, 309–311
  - SBQs and, 307
- service deployments**, 26, 49, 60
- Service Level Agreements. *See* SLAs**
- Service Model**, 51, 52
- Service Register**, 258
- Service Requesters/Access Control solutions/Relying Parties interactions**, 259
- Service Training Kit, Azure**, 243
- ServiceConfiguration.cscfg file**, 27
  - AspProviderDemo.sln Listing 6–5, 160–161
  - service configuration settings for remote storage endpoints (Listing 6–7), 169
  - settings for secure HTTPS transport of Azure, Tables and Blobs, 169
  - code to list queues in the storage account specified in the ServiceConfiguration.cscfg file (Listing 8–2), 212
  - ConfigurationSettings section, 97
  - default content in, 27–29
  - editing, 46
  - Fiddler2 and, 69
  - http changed to https, 130, 150
  - <Instances count="n"> element and, 53
  - Listing 2–2, 28
  - multitenancy and, 57
  - Primary Access Key/Secondary Access Key values and, 66
  - ProjectName.cspkg and, 44, 45
  - for SampleWebCloudService Web application, 28
  - <Setting> elements in, 160
  - Thumbnails\_WebRole and Thumbnails\_WorkerRole projects (Listing 8–22), 222
- ServiceDefinition.csdef file**, 27–28
- ServiceDefinition.csdef file (Listing 2–1)**, 27–28
- ServiceHostingSDKSamples**, 29, 30
- ServiceName – Production Deployment – Azure Blob Test Harness – Service Tuning page**, 103
- Service-Oriented Architecture (SOA)**, 10, 11, 14, 18
- SetProperties()**, 212
- <Setting> elements**, 160
- shared secret key**, 135
- shared server hosting**, 10
- SharePoint Services**, 6, 10
- Signature (Information Card term)**, 259
- Signed Security Token**, 258
- Silverlight**, 141, 274
- Silverlight Mesh-Enabled Web Application**, 35
- Silverlight UI**, 50, 60
- SilverlightStreamMedia**, 178
- SimpleDB. *See also* Amazon Web Services**
  - DBaaS and, 12
  - EAV tables and, 12, 29, 111, 187
  - FaaS and, 13
- simulation/visualization**, 119
- Site Data Protection (SDP) program**, 16

## SkyDrive (Microsoft Live)

- SkyDrive (Microsoft Live)**, 12, 33, 42, 94, 95, 97, 99, 104, 105
- SLAs (Service Level Agreements)**
  - for Azure, 55
  - business interruption risk and, 149
  - CaaS and, 12
  - MaaS and, 12
  - maximizing data availability and, 117
- SLAT (Second-Level Address Translation)**, 60
- Slicehost**, 11
- smartphones**, 10
- Smith, Erick**, 50, 51
- SmugMug**, 11
- SOA (Service-Oriented Architecture)**, 10, 11, 14, 18
- SOAP 1.2 messaging**, 285
- SOAP envelopes**, 306, 312
- SOAP message security**, 293
- SOAP protocol**, 21, 39, 40, 273, 274, 275
- SOAP response envelope**, 280, 281
- SOAP WS-\* identity/claims URIs**, 248
- SOAP-based web services**, 12, 54, 240
- Soderlund, H. W.**, 141
- “Software + Services for Architects”** *webcast*, 56
- Software as a Service**. *See* SaaS
- Software Development Kit**. *See* .NET Services SDK; SDK; WLID Web Authentication SDK 1.2
- Software Kernel**, 14, 15
- software licensing**, 116
- Software plus Services (S+S)**, 12
- solid state disks (SSDs)**, 7
- Solution Explorer**, xxii, 35, 36, 153, 266, 282, 292, 301
- solutions**, 294. *See also specific solutions*
- source code/online chapters**, xxii, xxv, xxvi, 41, 48, 63
- South Africa Report on Corporate Governance**, 120
- SOX**. *See* Sarbanes-Oxley Act
- SPARC processors**, 8
- specialty ASPs**, 10
- SQL Analysis Services (SSAS)**, 5, 6, 20
- SQL Azure**. *See* SQL Services
- SQL Azure Database**. *See* SADB
- SQL Data Services (SDS)**, xxv, 5, 41, 48, 63, 147, 187. *See also* SADB
- SQL Integration Services (SSIS)**, 40, 80
- SQL Reporting Services (SSRS)**, 5, 6, 20
- SQL Server 2005**
  - column-based server encryption, 146–147, 150
  - Express/Standard editions, 41
  - Windows Server 2003 R2 and, 13, 41
- SQL Server 2008**. *See also* SADB; SQL Services
  - “Database Encryption in SQL Server 2008 Enterprise Edition” technical article, 147
  - SADB and, 48, 187
  - “SQL Server 2008: Transparent data encryption feature - a quick overview” blog post, 147
  - “SQL Server 2008 TDE: Encryption You Can Use!” blog post, 147
  - SQL Services and, 40
  - TDE, 147, 150
- SQL Server Data Services (SSDS)**, xxv, 40, 41, 42, 56. *See also* SADB
- SQL Server in the Cloud**, xxv, 5, 41, 48. *See also* SQL Data Services
- SQL Server Management Studio**, 30, 31, 157
- SQL Services (SQL Azure)**, 5, 6. *See also* SADB
  - Analysis Services, 5, 6, 20, 40
  - in Azure Platform diagram, 6, 20
  - Integration Services, 40, 80
  - Reporting Services, 5, 6, 20, 40
  - SQL Azure Database. *See* SADB
- SQO**. *See* LINQ Standard Query Operators
- S+S (Software plus Services)**, 12
- SSAS (SQL Analysis Services)**, 5, 6, 20, 40
- SSDS (SQL Server Data Services)**, xxv, 40, 41, 42, 56. *See also* SADB
- SSDs (solid state disks)**, 7
- SSIS (SQL Integration Services)**, 40, 80
- SSL (Secure Sockets Layer)**. *See also* TLS
  - “Enabling SSL Connections on Windows Azure” *whitepaper*, 131
  - Enabling SSL for secure HTTP Blob, Table, and Queue transport (Listing 5–4), 130
  - Request headers to establish an SSL connection for Tables (Listing 5–5), 130
  - response headers to establish an SSL connection for Tables (Listing 5–6/Listing 5–7), 130–131, 134–135
  - “Tip/Trick: Enabling SSL on IIS 7.0 Using Self-Signed Certificates” *blog post*, 131
  - transmission encryption, for Web Roles, 127–135
  - TSL v., 129
- SSL page**, 44
- SSRS (SQL Reporting Services)**, 5, 6, 20, 40
- Staging Deployment page**, 45, 47
- Standard Query Operators**. *See* LINQ Standard Query Operators
- standardizing Information Card terminology**, 257–259
- Start()**, 224, 225
- Statement of Auditing Standards**. *See* SAS 70 attestations
- Stone, Brad**, 9
- Storage Accounts (Azure Storage Accounts)**, 21
  - creating, 64–67
  - Hosted Service tokens and, 64–67, 95
- Storage Services (Azure Storage Services)**, 5, 6, 13. *See also* blobs; Development Storage; queues; tables
  - in Azure Platform diagram, 6, 20
  - encryption of PII in, 135–147
  - purpose of, 48
  - REST APIs, 67–72. *See also* REST APIs
  - role of, 63, 111
- StorageAccountInfo.cs**, 72
- StorageClient class library**, 37, 80, 97, 111, 142, 170, 171, 210, 211
- StorageClient sample project**, 25, 37
- storing and retrieving blobs**, 94–111
- Stratus**, 5
- String (data type)**, 30, 79, 167
- structured data**. *See* tables
- STS (Security Token Service)**, 239, 243, 258, 261, 264, 271. *See also* Access Control Services
- Subject**, 258
- submitButton\_Click() event handler**, 224
- Summary page**, 43

**Sun Microsystems. See also Oracle**  
 Azure v., xxi  
 “The Network is the Computer” motto, 8

**T**

**TaaS (Tools as a Service)**, 13  
**Table Services (Azure Table Services)**, 29–32, 72–94.  
*See also* OakLeaf Systems Azure Table Services Sample Project  
 in Azure Platform diagram, 6, 20  
 table storage, 72–94  
**TableRetryWrapperException**, 73, 74  
**tables (Azure Tables)**, 27, 63, 72–94, 111. *See also* AzureTableTestHarnessSSL.sln project; EAV tables; OakLeaf3 table; SADB creating  
 with code, 72–79  
 with HTTP POST method, 79–80  
 Listings (4–1 to 4–4), 75–80  
 defined, 63, 111  
 entities, 80–94  
 adding with code, 81–82  
 adding with HTTP POST, 83–85  
 associated, 190–193  
 deleting, 93–94  
 primary key values for, 187–190  
 querying, 85–90  
 as table unit, 69  
 updating, 90–92  
 flexible properties feature, 188, 191, 208  
 locality and, 188, 208  
 partition strategy, 187–190, 208  
 performance/scalability optimization, 187–208  
 REST API and, 25  
 SADB v., 187  
 scalability/performance optimization, 187–208  
**TableStorage class**, 73, 74  
**TableStorageConstants**, 73  
**TableStorage.cs**, 72  
**TableStorageDataServiceContext**, 73  
**TableStorageDataServiceQuery**, 73  
**TableStorageEndpoint**, 29  
**TableStorageEntity**  
 class, 73  
 class diagram, 74

instance, encryption/decryption in, 142–145  
**TableStorageHelpers**, 73  
**TableStorageMembershipProvider class**, 161–162, 163  
**TableStorageProfileProvider class**, 164–165, 167  
**TableStorageRoleProvider class**, 162–164, 165  
**TableStorageSessionProvider class**, 165–169  
**TableStorageTable class**, 73  
**Take(n) Standard Query Operator (LINQ)**, 189, 208  
**TDE. See Transparent Data Encryption**  
**templates (Azure Application Templates for Visual Studio 2008)**, 24, 35–37  
**tenants. See guest VMs; multitenancy**  
**Thibodeau, Patrick**, 118  
**thin clients**, 7–8  
**thumbnailmaker queue**, 213  
 HTTP PUT request and response messages to create a queue named “thumbnailmaker” (Listing 8–3), 212–213  
 HTTP request and response messages  
 to add a simple string message to the “thumbnailmaker” queue (Listing 8–9), 216  
 to add three metadata properties to the “thumbnailmaker” queue, 214  
 to delete a queue named “thumbnailmaker” (Listing 8–5), 213–214  
**Thumbnails2.sln (modified project)**, 221  
 AJAX modifications and, 221, 222  
 flow diagram (for Thumbnails\_WebRole and Thumbnails\_WorkerRole projects), 231, 232  
 gvBlobs GridView added to, 231–233  
 Marx’s recommendations for, 229–230  
 thumbnail deletion and, 231–234  
**Thumbnails.sln (original project)**, 25, 235  
 added thumbnail images and, 221  
 bandwidth consumption and, 235  
 enhancing, 221–234

flow diagram (for Thumbnails\_WebRole and Thumbnails\_WorkerRole projects), 222, 223, 231, 232  
 Photo Gallery Azure Queue Services Test Harness, xxv, 34  
 purpose of, 25, 221, 235  
 real-world tests of, 235  
 thumbnailmaker queue. *See* thumbnailmaker queue  
**Thumbnails\_WebRole and Thumbnails\_WorkerRole projects**  
 analyzing network traffic implications of polling for blob updates, 225–229  
 code Listings  
 default ServiceConfigure.cscfg document (Listing 8–22), 222  
 HTTP request and partial response messages for adding a thumbnail image with the GridView’s ViewState turned off (Listing 8–25), 227–229  
 HTTP request and response messages generated by WorkerRole polling (Listing 8–26, Listing 8–27), 230, 233–234  
 HTTP request message with 10 thumbnail images with partial ViewState contents (Listing 8–23, Listing 8–24), 225, 226  
 event handlers/methods of, 224–225  
 flow diagram  
 Thumbnails2.sln (modified project), 231, 232  
 Thumbnails.sln (original project), 222, 223, 231, 232  
 methods/event handlers of, 224–225  
 WebRoles/WorkerRoles interactions, 222–225  
**TimeSpan**, 167  
**TimeStamp**, 30, 180  
**“Tip/Trick: Enabling SSL on IIS 7.0 Using Self-Signed Certificates” blog post**, 131  
**TLS (Transport Layer Security)**  
 enabling TLS for Secure HTTP WebRole transport (Listing 5–1), 127  
 HTTPS with, 127–135, 150

## TLS (Transport Layer Security) (continued)

### TLS (Transport Layer Security) (continued)

request headers to establish TLS connection for WebRole (Listing 5-2), 128

response headers establishing TLS connection for WebRole with certificate (Listing 5-3), 128-129

SSL v., 129

**Tokens page**, 21, 23, 64, 65

**Tools as a Service (TaaS)**, 13

**“Top 10 Obstacles for Growth of Cloud Computing”**, 55, 116. *See also* obstacles

**“Toward a Unified Ontology of Cloud Computing” research paper**, 13, 14

**transparency**, 55, 120

**Transparent Data Encryption (TDE)**, 147, 150

**Transport Layer Security**. *See* **TransportClientCredentialType** enum, 287

**TripleDESCryptoServiceProvider**, 136

**Trust Identity**, 258

**Trusted Root Certificate Authorities List**, 132-134

**T-SQL**, 41, 48, 146

**\$200 Laptops Break a Business Model” story**, 9

**U**

**UCI (Unified Cloud Interface) project**, 17

**UInt16**, 167

**UInt32**, 167

**UInt64**, 167

**“Under the Hood: Inside the Cloud Computing Hosting Environment,”** 50-51

**Unified Cloud Interface (UCI) project**, 17

**unique entity ID**, 187, 188

**unique RowKey values**, 188, 192, 208

**Unsigned Security Token**, 258

**unstructured data**. *See* **blobs**

**Upgrade Domains**, 52, 54, 60

**uploaded request messages**. *See* **data ingress costs**

**Urquhart, James**, 13

**user names, case sensitive**, 153

**utility computing**, 12, 14

**V**

**v1 private CTP account, SADB**, 42

**Vance, Ashlee**, 9

**Verizon**, xxi

**vertical-market ASPs**, 10

**View Open Client, VMware**, 8

**virtual machines (VMs)**, 14, 51, 53, 58

    gang-schedule, 116

    guest, 49, 50, 53, 58, 59

    host, 49, 50, 53, 58

**Virtual Private Server (VPS)**, 11, 15

**virtualization process (server virtualization)**, 49, 58-60

**virtualization service client (VSC)**, 58, 59

**virtualization service provider (VSP)**, 58, 59

**virtualized runtime application platform**, 13

**Visa’s Cardholder Information Security Program**, 16

**Vista (Windows Vista)**

    Azure Log Viewer and, 103, 104

    SP1, 6, 20

    SP2, 24

**Visual Studio (Microsoft Visual Studio 2008)**

    2010, xxii, xxiii, 5, 19, 295

    Azure Application Templates for, 24, 35-37

    Azure tools for, xxiv, 5, 6, 22, 24, 27, 35, 51

    MakeCert.exe, 131, 134, 135, 150

    New Project dialog, 35, 178

    Windows Live Tools for, 177-181

    WorkFlow Designer, 40, 311

**visualization/simulation**, 119

**VMBus**, 50, 58, 59

**VMs**. *See* **virtual machines**

**VMware View Open Client**, 8

**Vo, Hoi**, 60

**Volodarsky, Michael**, 169

**VPS (Virtual Private Server)**, 11, 15

**VSC (virtualization service client)**, 58, 59

**VSP (virtualization service provider)**, 58, 59

**W**

**WCF (Windows Communication Framework) services**, 20

    EchoService, 266-270

    HTTP Activation, 24

    Service Bus and, 39, 273

    SOAP clients and, 240

    web services and, 240

    WIF and, 240

**Web and Worker Service**, 6, 13, 20, 24, 38

**Web Cloud Services**, 24, 31, 33. *See also* Cloud Services

    in Azure Platform diagram, 6, 20

    client wrapper class libraries and, 37

**web hosting services**, 10-11

**Web TV**, 8-9

**WebAuth sample web site**, 176, 177, 182-183, 186

**webauth\_handler.aspx page**, 177, 181, 182, 183-184

**web.config file (AspProviderDemo.sln)**

    Azure-specific membership elements in, 158-161

    membership section (Listing 6-1), 158

    optional data services/default settings (Listing 6-3/6-4), 160

    role manager/profile/session state sections (Listing 6-2), 159

**WebRoles**, xxii, xxiv, 50. *See also* Thumbnails\_WebRole and Thumbnails\_WorkerRole projects

    SSL transmission encryption for, 127-135

    /WorkerRoles interactions, 222-225

**WFS**. *See* **Workflow Services**

**WHERE clause**, 146

**WIF**. *See* **Windows Identity Foundation**

**Windows Azure**. *See* **Azure**

**Windows Azure operating system**. *See* **Azure OS**

**Windows Azure Platform**. *See* **Azure Platform**

**Windows Azure Services Platform**. *See* **Azure Platform**

**“Windows Azure Walkthrough: Simple Table Storage” blog post**, 72

**Windows CardSpace information card**. *See* **CardSpace information card**

**Windows CE**, 9

**Windows Communication Framework services**. *See* **WCF services**

**“Windows Data Protection” whitepaper**, 136

- Windows Identity Foundation (WIF, formerly Geneva Framework)**, 239, 243, 244, 271, 273, 274  
 Geneva Framework and, 239, 240, 243, 244, 273  
 WCF and, 240
- Windows Live ID (WLID) authentication**, 151, 175–186  
 IDLoginStatus control, 178–181  
 IDLoginView control, 178, 181  
 implementing, for existing web site, 181–182  
 LiveIDSampleCloudService.sln project and, 177, 181–186  
 Web.config settings for WLID's default Application ID and SecretKey settings for authenticating web sites (Listing 6–11), 176–177  
 Windows Live Tools for Visual Studio, 177–181  
 WLID Web Authentication SDK 1.2, 175–177, 186
- Windows PowerShell**, 24, 25, 243
- Windows Vista**. *See* **Vista**
- WLID authentication**. *See* **Windows Live ID authentication**
- WLID Web Authentication SDK 1.2**, 175–177, 186
- Worker Cloud Services**, 6, 20, 34, 63, 72
- WorkerRoles**, 50  
*See also* Thumbnails\_WebRole and Thumbnails\_Worker Role projects  
 /WebRoles interactions, 222–225
- WorkFlow Designer, Visual Studio**, 40, 311
- Workflow Services (WFS)**  
 in Azure Platform diagram, 6, 20  
 defined, 311  
 features, 40, 295  
 as high-scale host, 40, 311  
 .NET 4 and, xxii, xxiii, xxv, 40, 271, 295  
 .NET Services and, xxii, 40, 48, 240, 295  
 online information, 40
- wrapper classes**, 71
- Wrox P2P**, xxvii
- WSHttpRelayEchoSample.sln**, 285–294. *See also* EchoSample solution  
 App.config file (Listing 10–8), 286–287  
 App.config file binding details (Listing 10–9), 293–294  
 autogenerated scope for, 290–292  
 EchoSample solution v., 286–287
- self-issued CardSpace card and, 288
- Wyse Technology**, 8
- X**
- X509**, 132, 135
- X509Certificate**, 287
- XaaS**, 13. *See also* Everything as a Service
- XML**  
 blobs and, 32  
 comments, 28  
 document, 162  
 element names, 72  
 log data, 103, 105  
 protocol, 21  
 Request Body, 34  
 SAML and, 239  
 Save to XML button, 104
- XPathQueryHelper static class**, 98
- Y**
- Yong, Joe**, 147
- Youseff, Lamina**, 13, 14, 15
- Z**
- ZAW (Zero-Administration Windows)**, 7, 8
- Zero-Administration Windows (ZAW)**, 7, 8