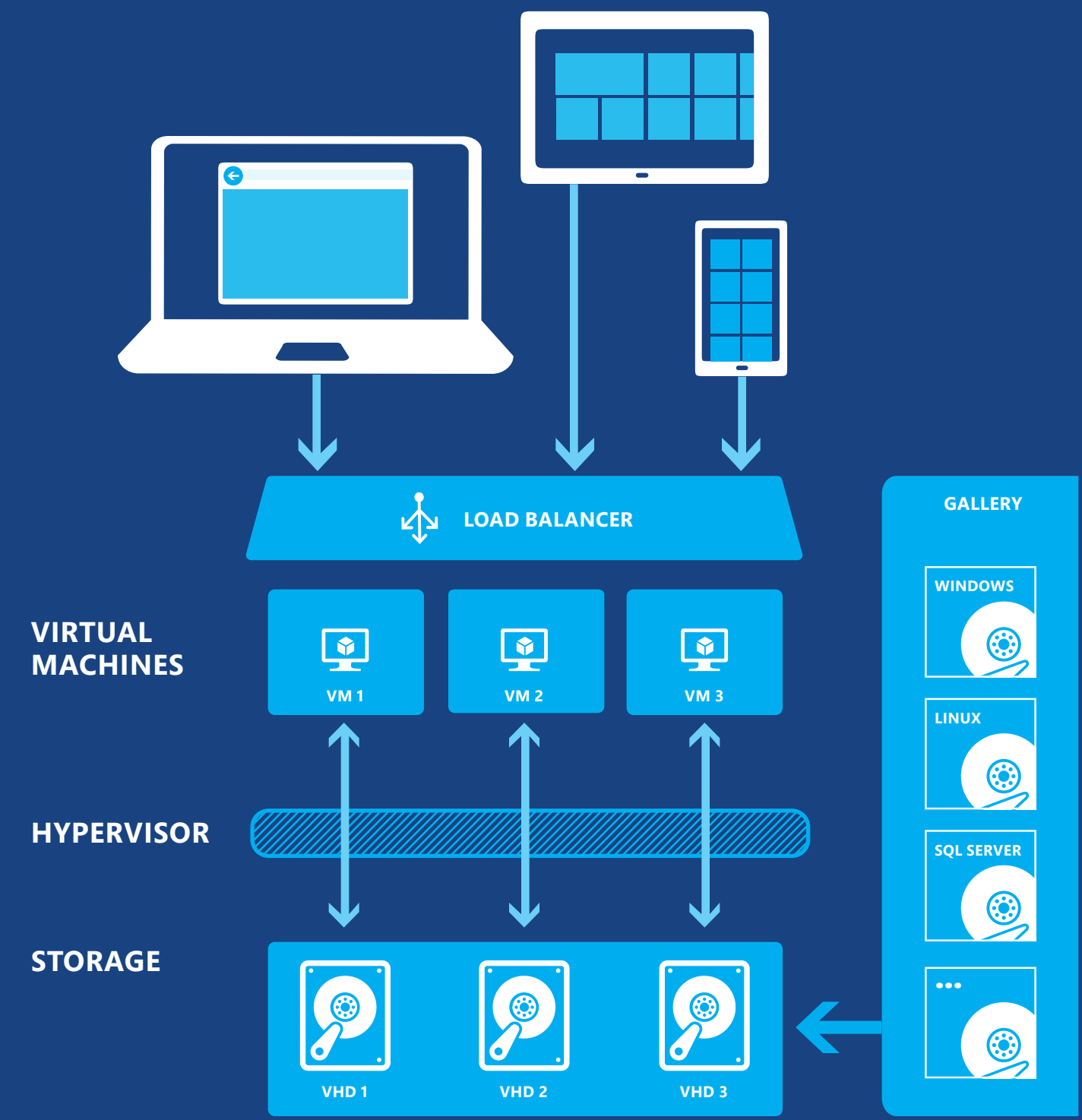# Four primary models for building and running apps
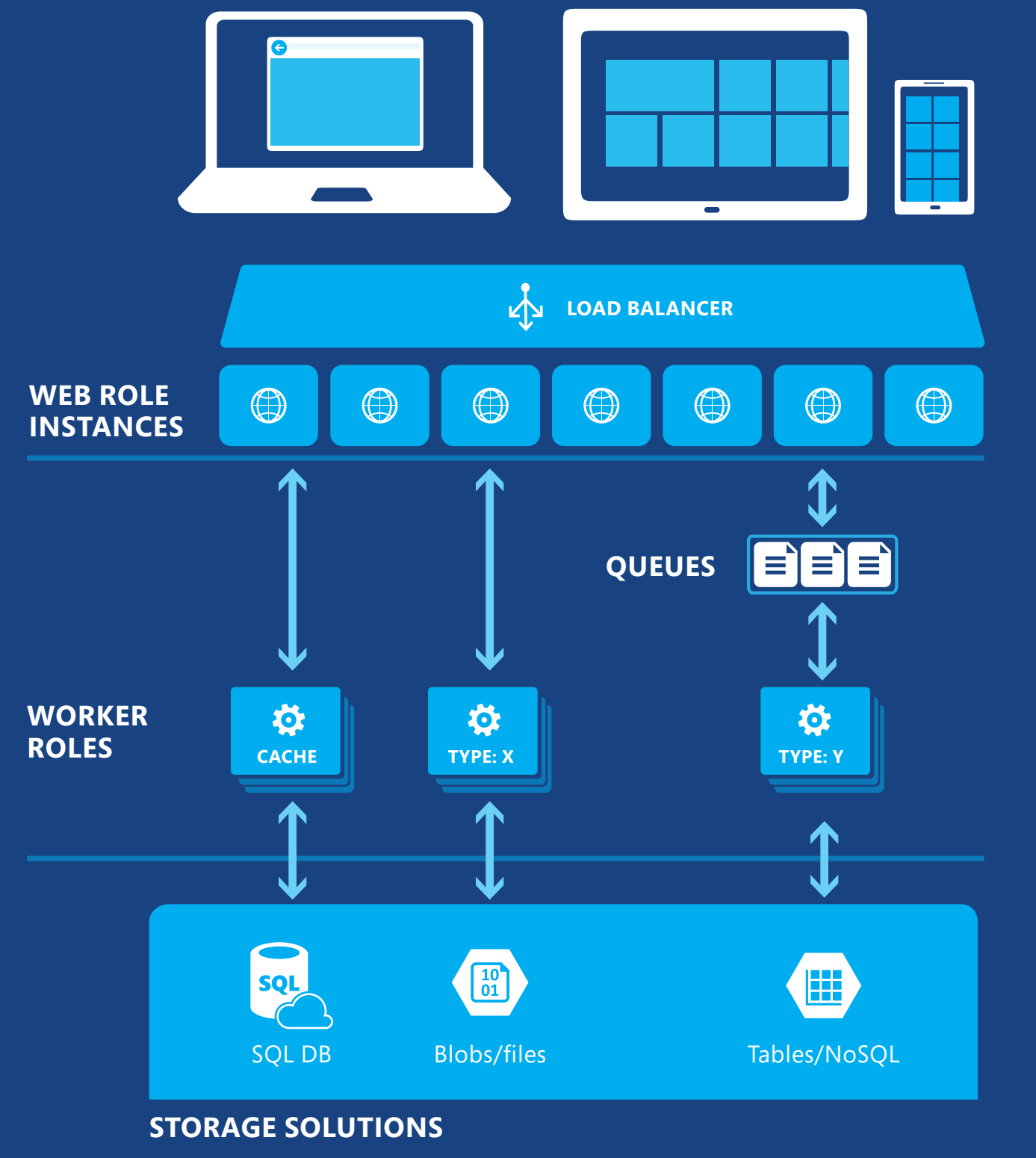
Microsoft Azure

1. Virtual Machines

VMs are basic cloud building blocks. Get full control over a virtual machine with virtual hard disks. Install and run software yourself. Configure multiple machines with different roles to create complex solutions. VMs are nearly identical to conventional (real) servers, and are the easiest way to move existing workloads to the cloud.
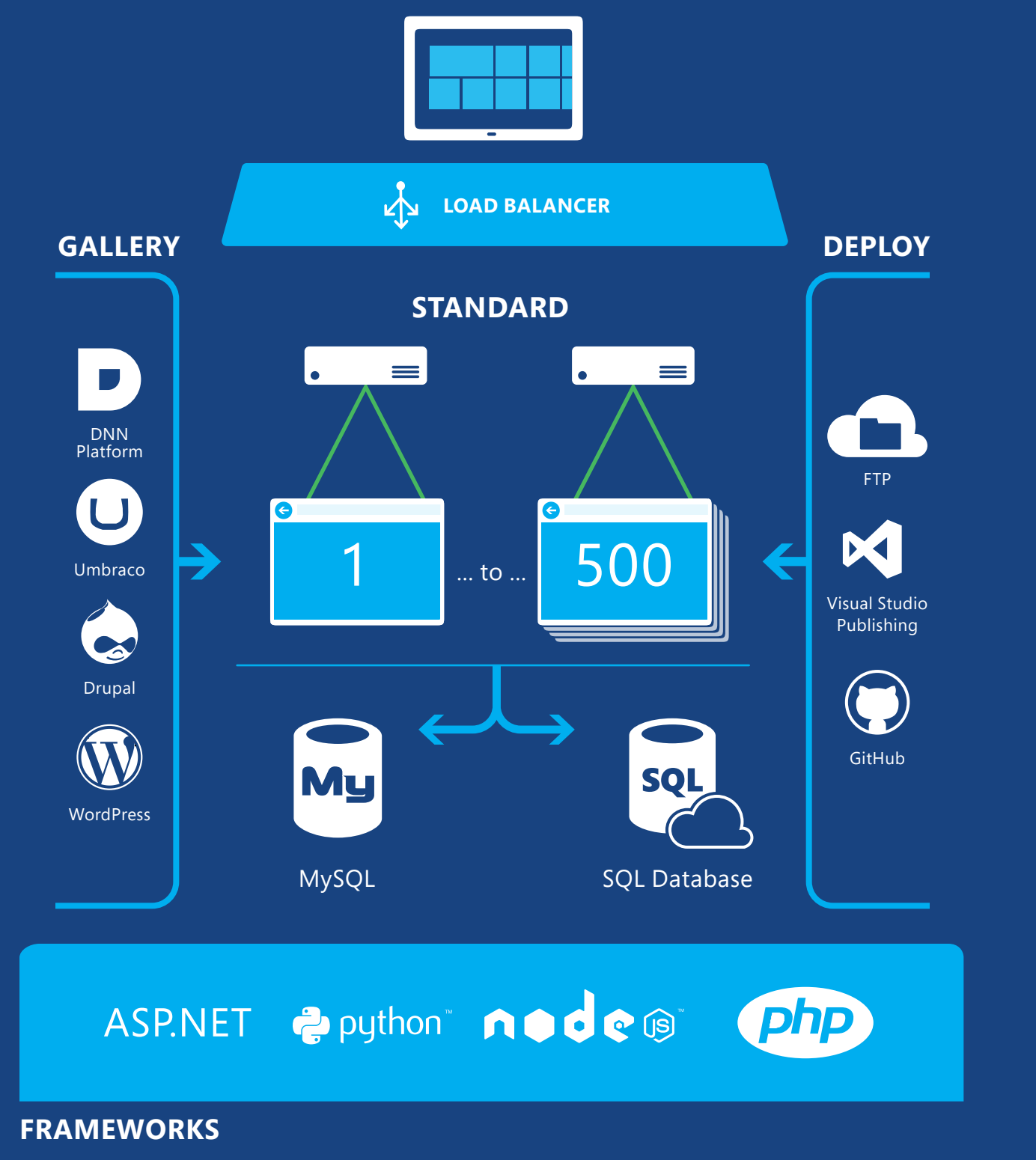
GALLERY

WINDOWS

LINUX

SQL SERVER

LOAD BALANCER

VIRTUAL MACHINES — VM 1 — VM 2 — VM 3

HYPERVISOR

STORAGE — VHD 1 — VHD 2 — VHD 3

2. Cloud Services

Easily access and manage these general-purpose VMs . We maintain and update each VM as needed with system updates. You configure the VM size as needed, and scale out as many copies as needed. Two types of VMs: worker roles and web roles—worker roles are made for computing and running services. The web role is simply a worker role with IIS already installed and configured.

LOAD BALANCER

WEB ROLE INSTANCES

QUEUES

WORKER ROLES — CACHE — TYPE: X — TYPE: Y

SQL DB — Blobs/files — Tables/NoSQL
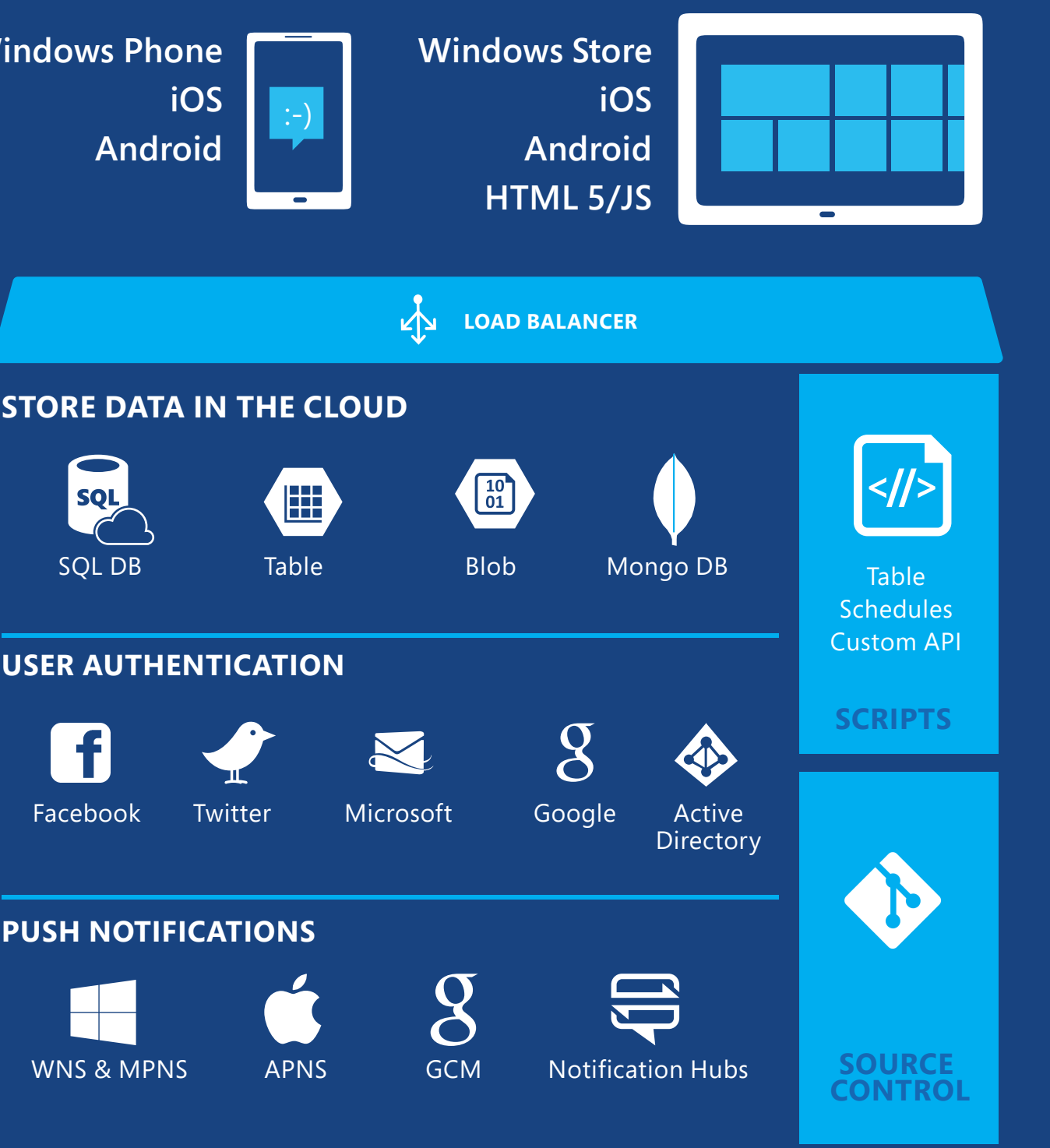
STORAGE SOLUTIONS

3. Web Sites

Use these for pure web apps. The underlying system software is hidden from you and managed for you. Focus only on your web code. First, choose a web technology from the gallery, then develop with your framework, and finally deploy from your source control. Use the data platform of your choice. Develop 1 site or 500. Scale can be automated—by schedule, usage, or by a quota trigger.

GALLERY

STANDARD

DEPLOY

DNN Platform

Umbraco

Drupal

WordPress

LOAD BALANCER

1 ... to ... 500

FTP

Visual Studio Publishing

GitHub

MySQL — SQL Database

FRAMEWORKS

ASP.NET — python — node.JS — php

4. Mobile Services

Mobile Services allows you to quickly implement data and authentication capabilities. With Mobile Services, easily create a common web API to store data and execute business logic. Apps on any device call the API, and users are authenticated by third party providers. Apps can also receive notifications when events occur. Worry less about data and authentication, and focus on your service.

Windows Phone — iOS — Android
Windows Store — iOS — Android — HTML 5/JS

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STORE DATA IN THE CLOUD

SQL DB — Table — Blob — Mongo DB

USER AUTHENTICATION

Facebook — Twitter — Microsoft — Google — Active Directory

PUSH NOTIFICATIONS

WNS & MPNS — APNS — GCM — Notification Hubs

Table Schedules Custom API

SCRIPTS

SOURCE CONTROL

Azure is an open and flexible cloud platform that enables you to quickly build, deploy, and manage applications across a global network of Microsoft-managed datacenters.

You can build applications using any language, tool, or framework. And you can integrate your public cloud applications with your existing IT environment.

Search **azure.microsoft.com, MSDN, or TechNet** for keywords found in this poster

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Here's just one way to get your first web app with a database running on Azure

Create a virtual network →
Create a virtual machine using the SQL Server image in the gallery →
Deploy your database to the server (or use the Import Export service) →
Deploy your app code to the web site (publish from VS or the source control of your choice) →
Sync your on-premises Active Directory to Azure Active Directory and add multifactor authentication →
Test your app using VS Online to perform cloud-based load tests →
Scale and tune your app performance, and configure autoscaling →
Extend and monitor your app with a service from the Store, such as SendGrid or NewRelic

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Choose from an extensive service catalog

COMPUTE

DATA SERVICES

Virtual Machines
Get full control over a server in the cloud, and maintain it as your business requires.

Web Sites
Get started with web apps for free. Scale as you go. Build using a range of tools and languages.

Mobile Services
Add backend capabilities to mobile apps, with native client support on most device platforms.

Cloud Services
Create and easily scale Internet-facing web roles and worker roles that perform background tasks. All roles can access data stores and other services.

Storage
Manage data more securely using a range of storage options. Accessible via REST APIs. Blob storage provides up to 100 terabytes per account.

SQL Database
Manage relational data with built-in high availability. Configure, monitor, and recover backups locally or to Azure storage.

HDInsight
Provision and integrate big data easily with tools including Microsoft Office and System Center. Based on Apache Hadoop.

SQL Data Sync
Synchronize data regularly or on-demand between instances of SQL Database and instances of either SQL Server and/or SQL Database.

Hyper-V Recovery Manager
Protect important services by coordinating the replication and recovery of System Center 2012 private clouds at a secondary location.

Backup
Schedule backups of your local server data to Azure using PowerShell cmdlets.

Cache
Make your applications scale and be more responsive under load by keeping data closer to application logic.

Store
Find, access, and manage services and data sets, directly from the Management Portal.

APP SERVICES

NETWORK SERVICES

Notification Hubs
Deliver millions of cross-platform push notifications within minutes from any application backend, on-premises or in the cloud.

Service Bus
Use this messaging channel for connecting your cloud applications to your on-premises applications, services, and systems.

Visual Studio Online
Host code, plan and track projects, and collaborate with team members to deliver better software.

Media Services
Build workflows to create, manage, and distribute on-demand media and live streaming events.

BizTalk Services
Build EDI services and Enterprise Application Integration (EAI) solutions in the cloud.

Active Directory
Use this cloud service to provide an identity and access management solution: directory services, identity governance, security, and application access management.

Scheduler
Create jobs that call services in and outside of Azure, and specify when and how often those jobs run.

CDN
Increase performance by caching blobs and static content of compute instances at physical nodes globally.

Multi-Factor Authentication
Implement with Active Directory to safeguard access to data and applications while employing a simple sign-in process.

Virtual Network
Provision and manage VPNs in Azure and securely link to your on-premises IT infrastructure.

Traffic Manager
Load-balance incoming global traffic across multiple services running in the same or different datacenters.

ExpressRoute
Connects your on-premises infrastructure directly to Azure datacenters. Connections do not go over the public Internet and improve reliability, speed, and security over typical Internet connections.

Microsoft