cloud strategy day

"How the Microsoft cloud enables the best App experiences across devices"

Beat Schwegler – beatsch@microsoft.com
Director, Platform Strategy Group, Microsoft Corp.

agenda

Microsoft's devices and services strategy

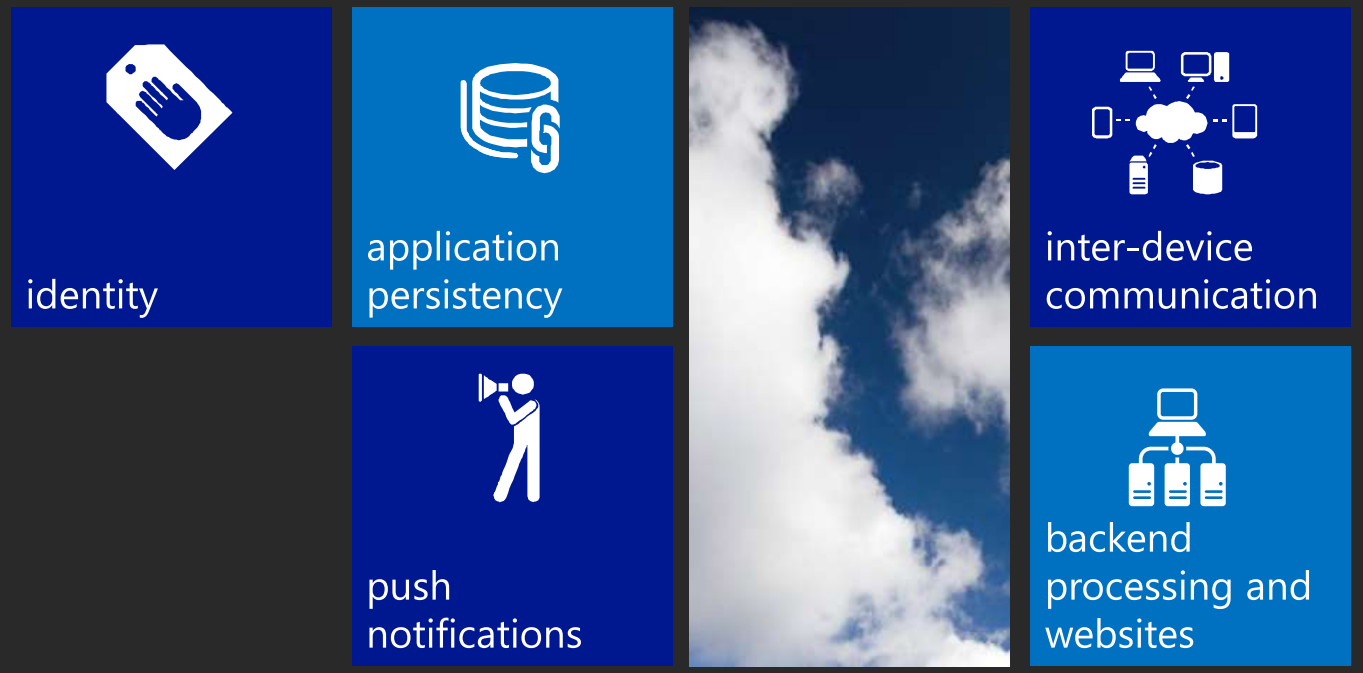
making money with apps

cloud enabled app scenarios with Windows Azure

key architectural considerations

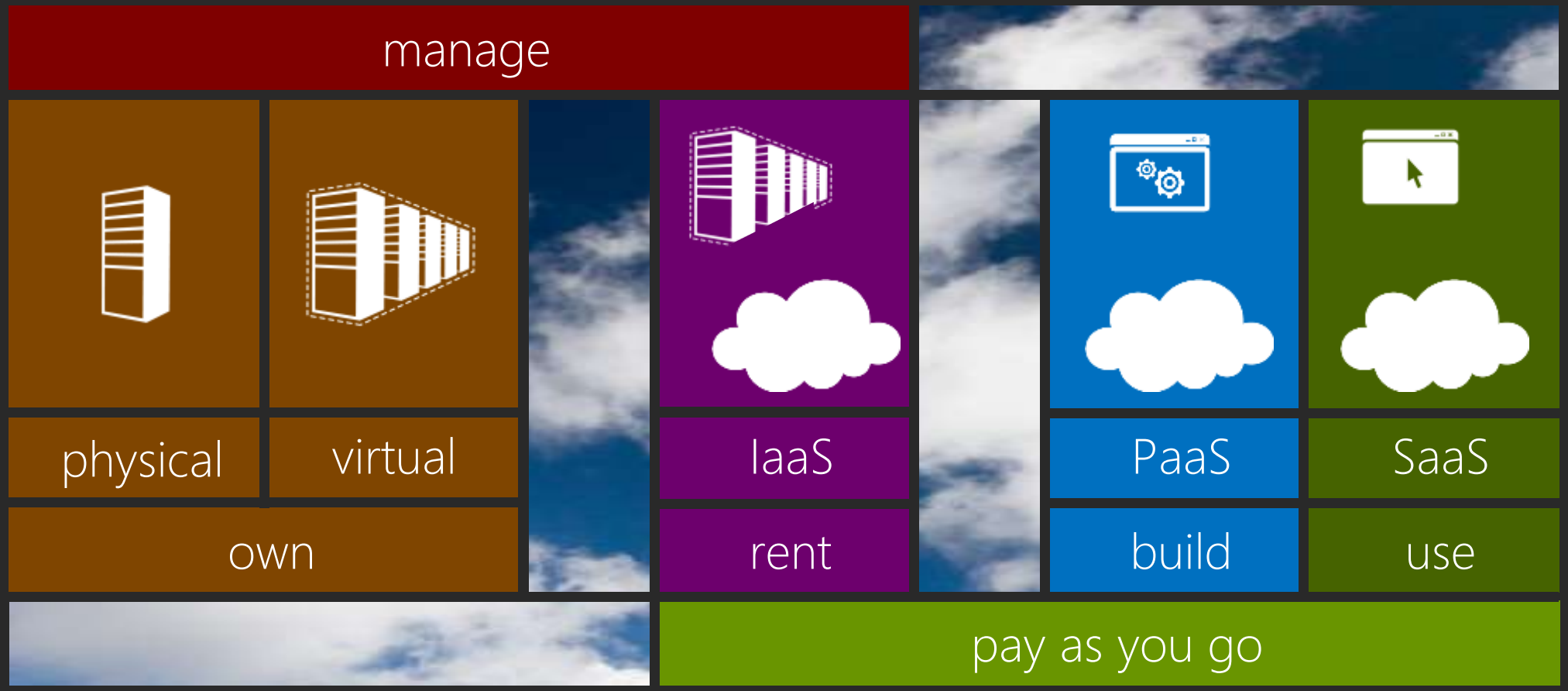
chapter III

core cloud capabilities



core cloud capabilities

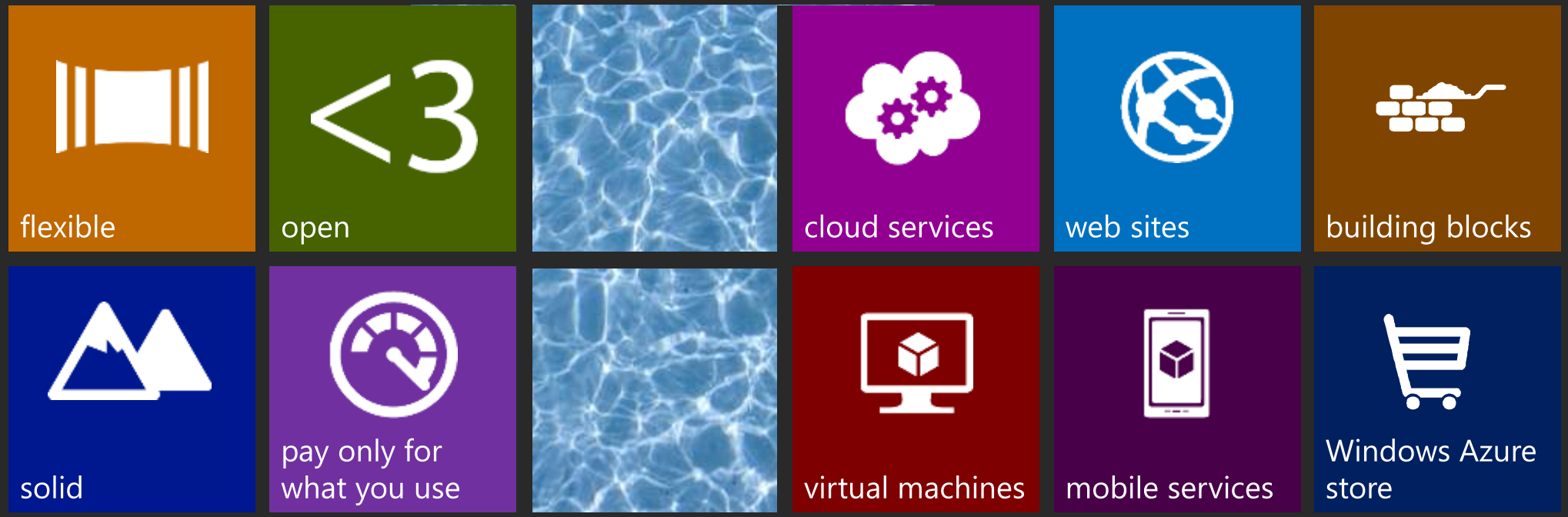
spectrum of IT services



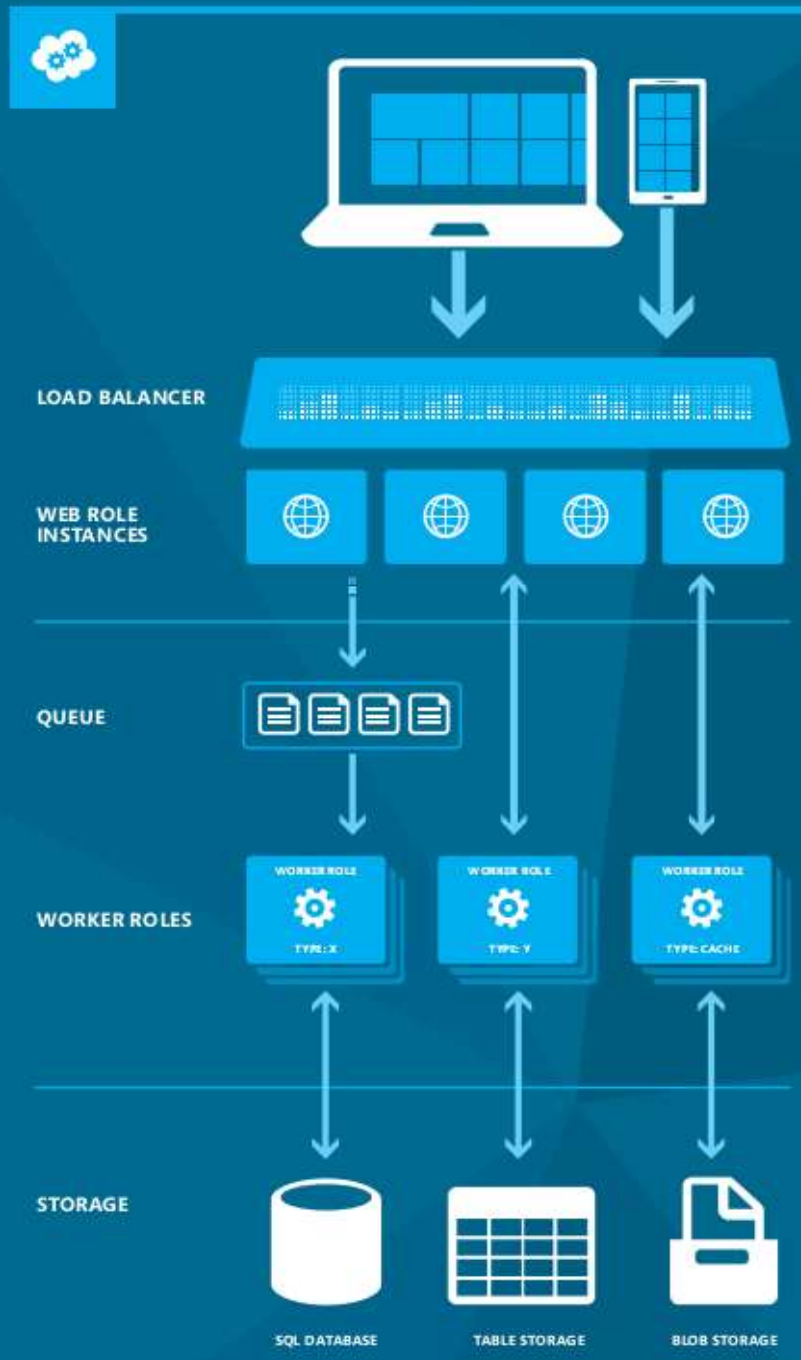

Microsoft cloud datacenters

Microsoft cloud platform

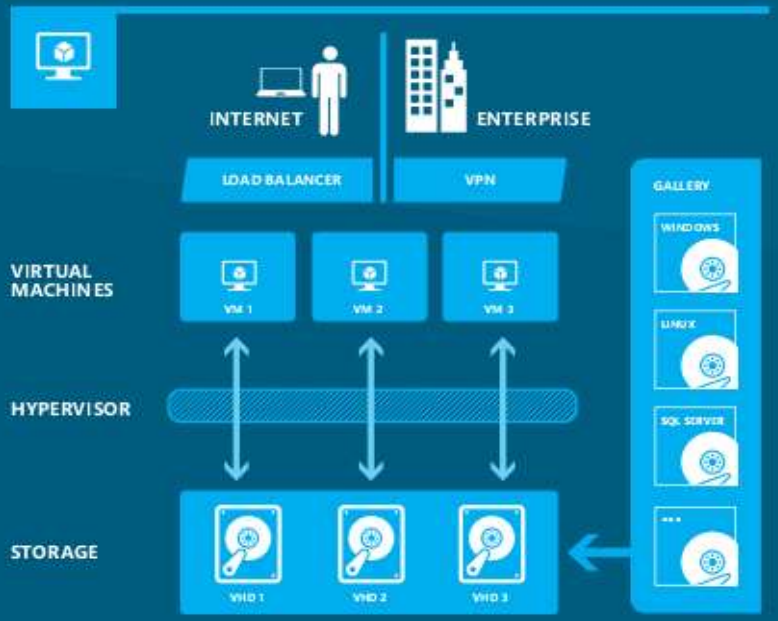
Windows Azure



CLOUD SERVICES

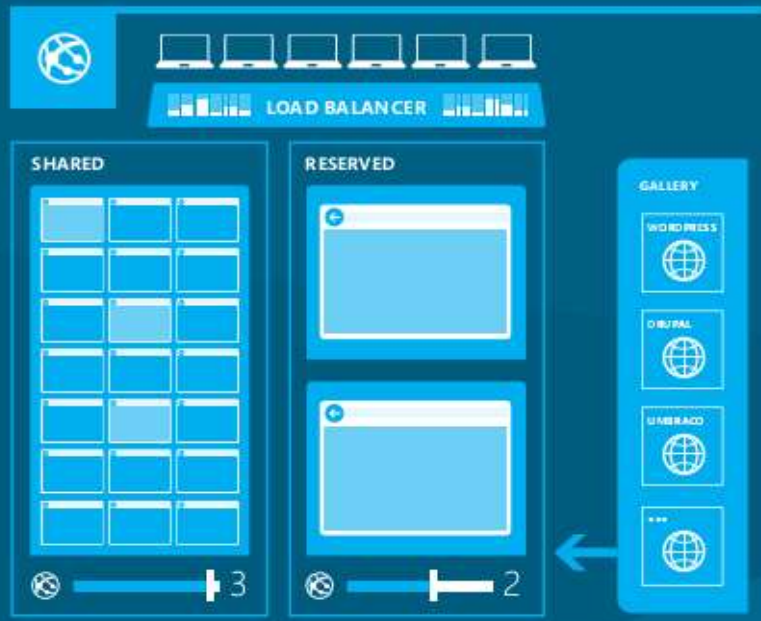


VIRTUAL MACHINES



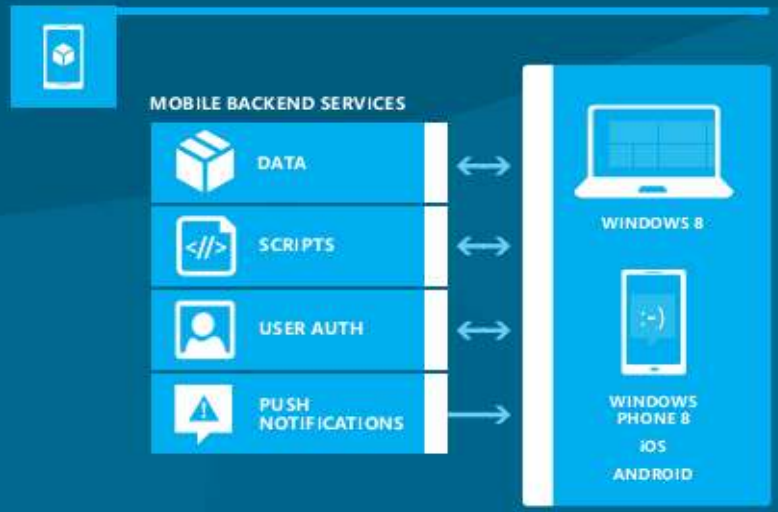
Virtual Machines can run both Windows and Linux operating systems. Create VMs from Virtual Hard Disk images stored as blobs. Create VHDs locally and upload them, choose from a stock gallery or modify a running VM and save the image to your personal gallery.

WEB SITES

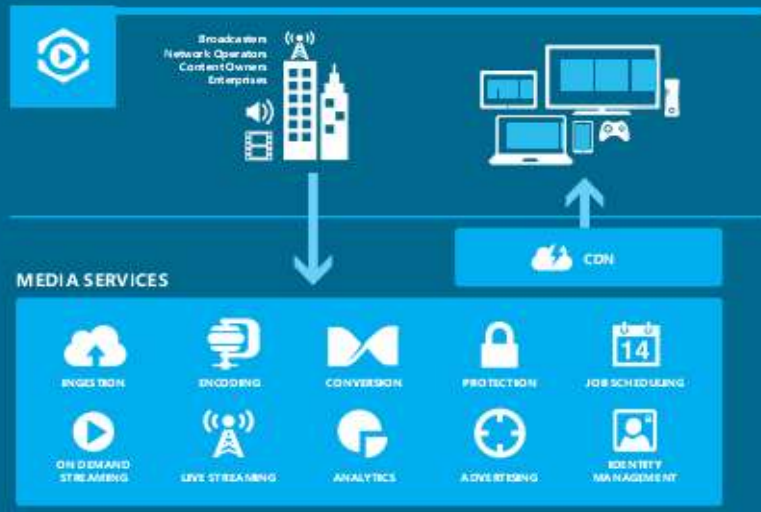


With Web Sites, you can share space in a VM or reserve an entire machine for your web site. You can create sites with both SQL Database and MySQL databases, as well as deploy popular open source software from a gallery. You can use the slider on the Windows Azure portal to scale out to more instances.

MOBILE SERVICES



MEDIA SERVICES



Windows Azure compute

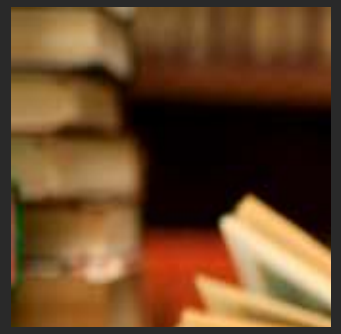
Windows Azure virtual machines

Windows Server and Linux

virtual private networking

flexible workload support

Windows Azure web sites

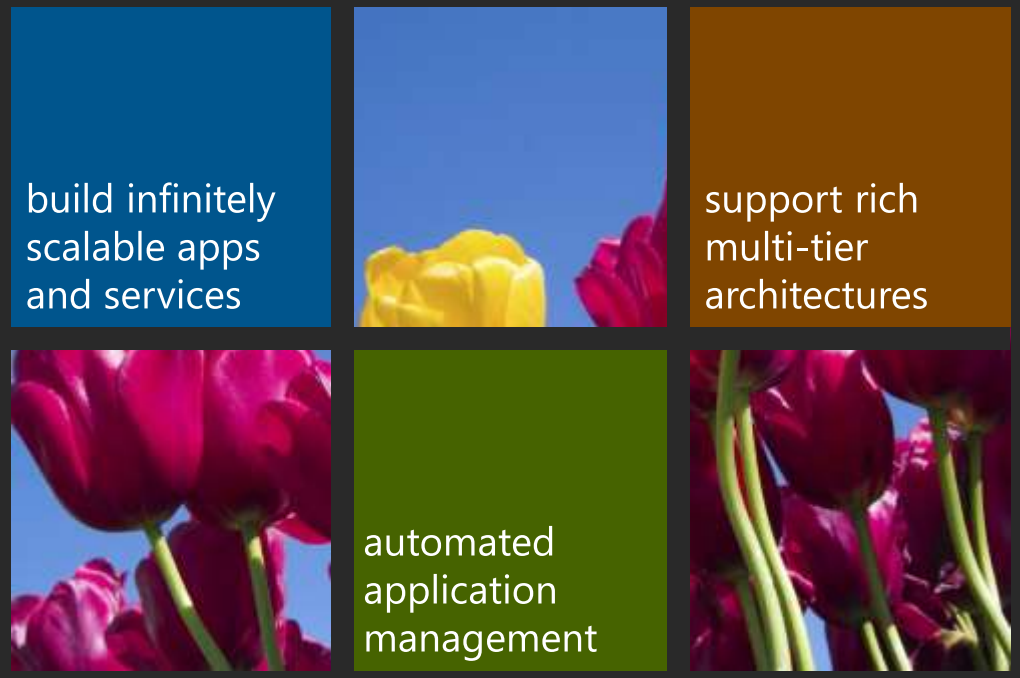


deploy in seconds with FTP, Git or TFS

build with ASP.NET, node.js or php

start for free, scale up as traffic grows

Windows Azure cloud services




demo:
Windows Azure

core cloud capabilities

identity


authentication
Federation
authorization
username
password
claims based
identity

identity: what are the options?

create your own

username + password, token, etc.
ASP.NET membership providers

use an existing identity system

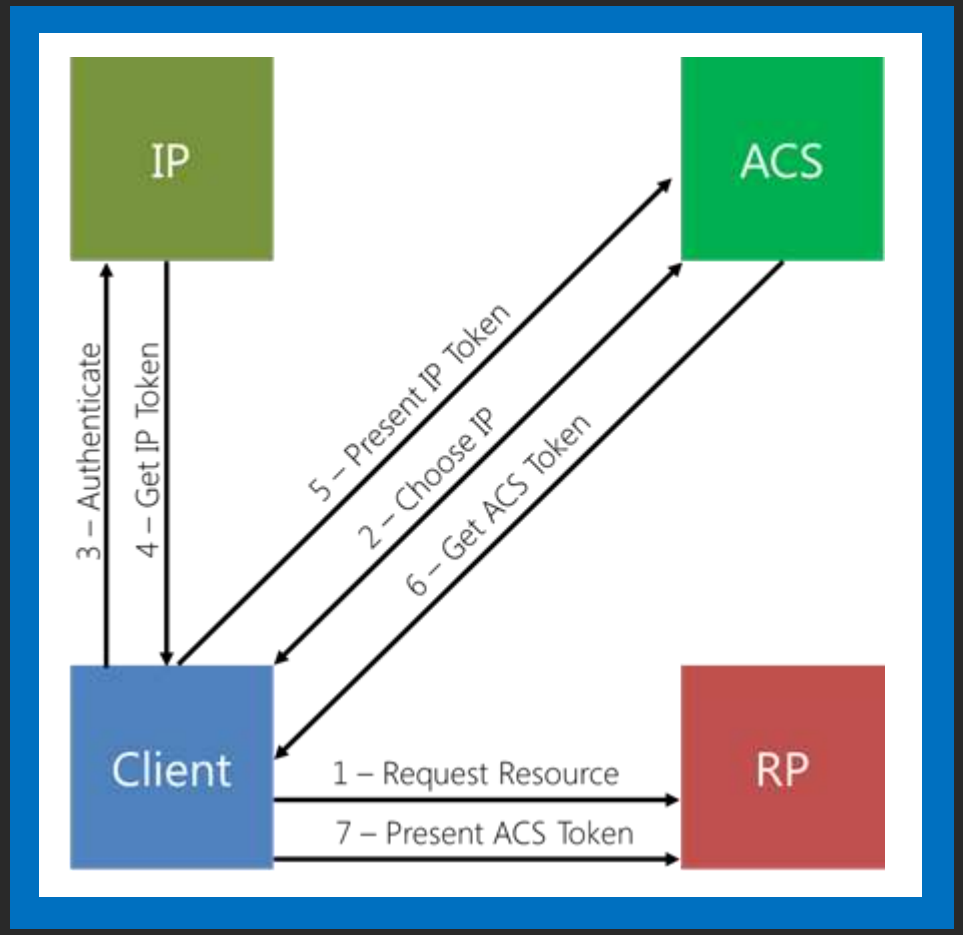
Live Id, Facebook, etc.
develop directly against IdP protocol

outsource identity management

Access Control Service
Windows Azure AD


demo:
Access Control
Service in
BabelCam

Access Control Service (ACS)



Windows Azure Active Directory

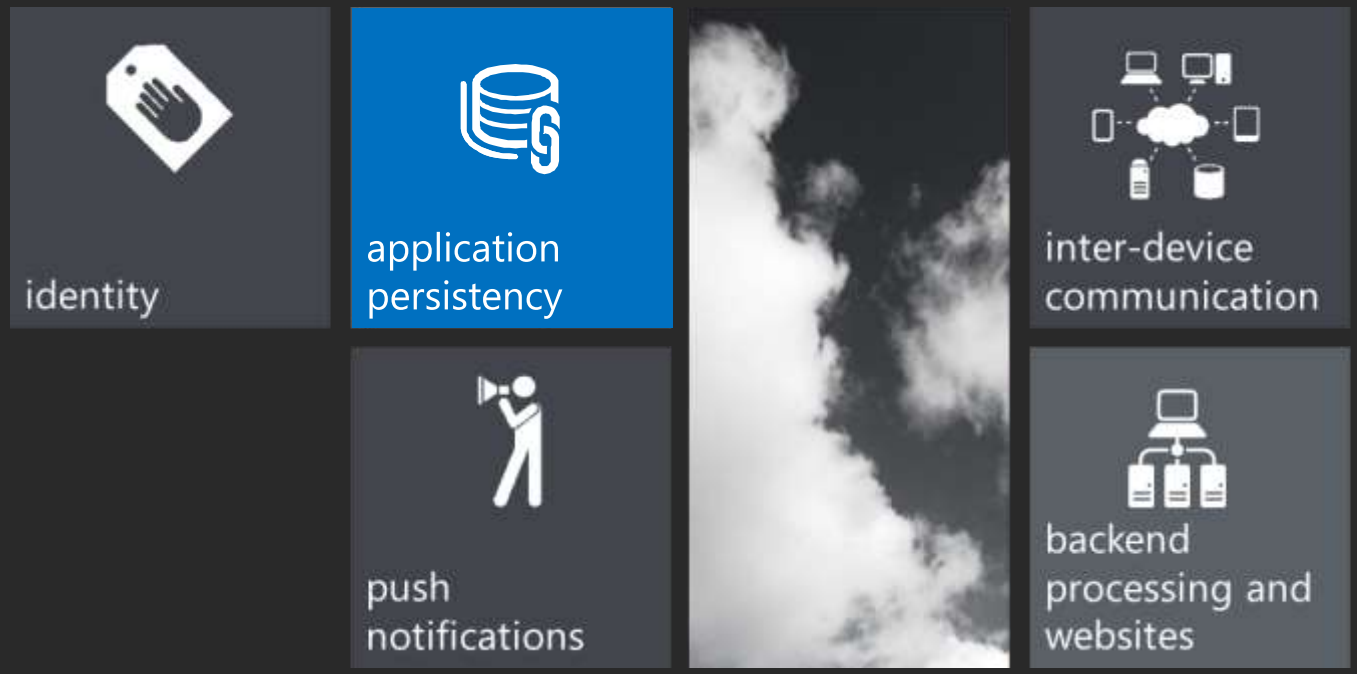
REST based service in the cloud

Microsoft Office 365, Dynamics CRM Online, Windows Intune…

single sign on across cloud applications

cross company social connections

core cloud capabilities



storage options

tables

non-relational structured storage
massive scale-out

blobs

big files

queues

persistent async messaging
enqueue, dequeue

SQL
database

relational database
highly available
managed for you as a service

storage secrets

Windows Azure

storage name
storage key

SQL database

username
password

Windows Azure mobile services

easily build cloud back-ends

data, identity management, push notifications

Windows 8, Windows Phone, iOS

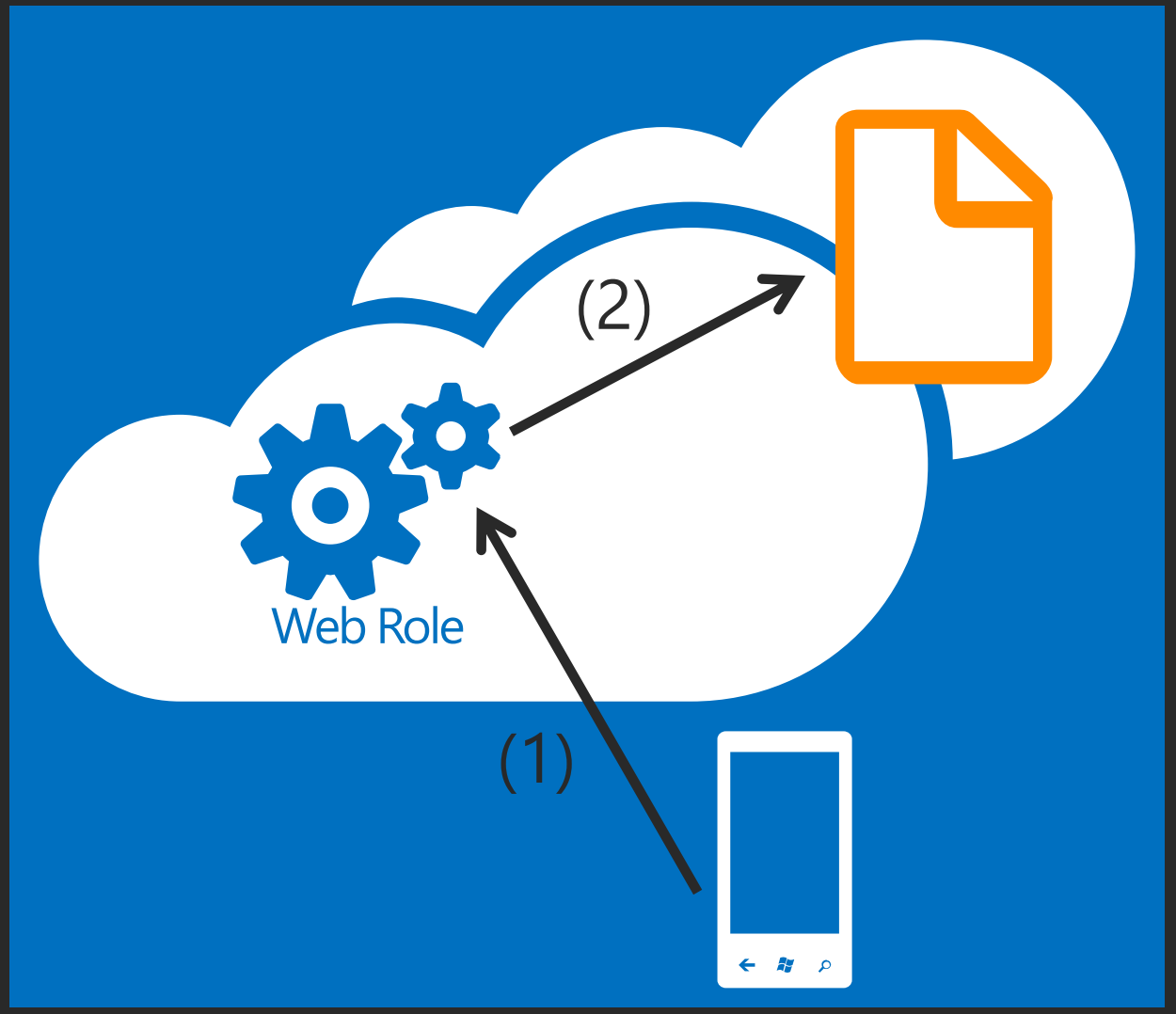

demo:
Windows Azure
Mobile Services

keep secrets secret

proxy the requests:

(1) client sends data to web role

(2) web role sends data to storage



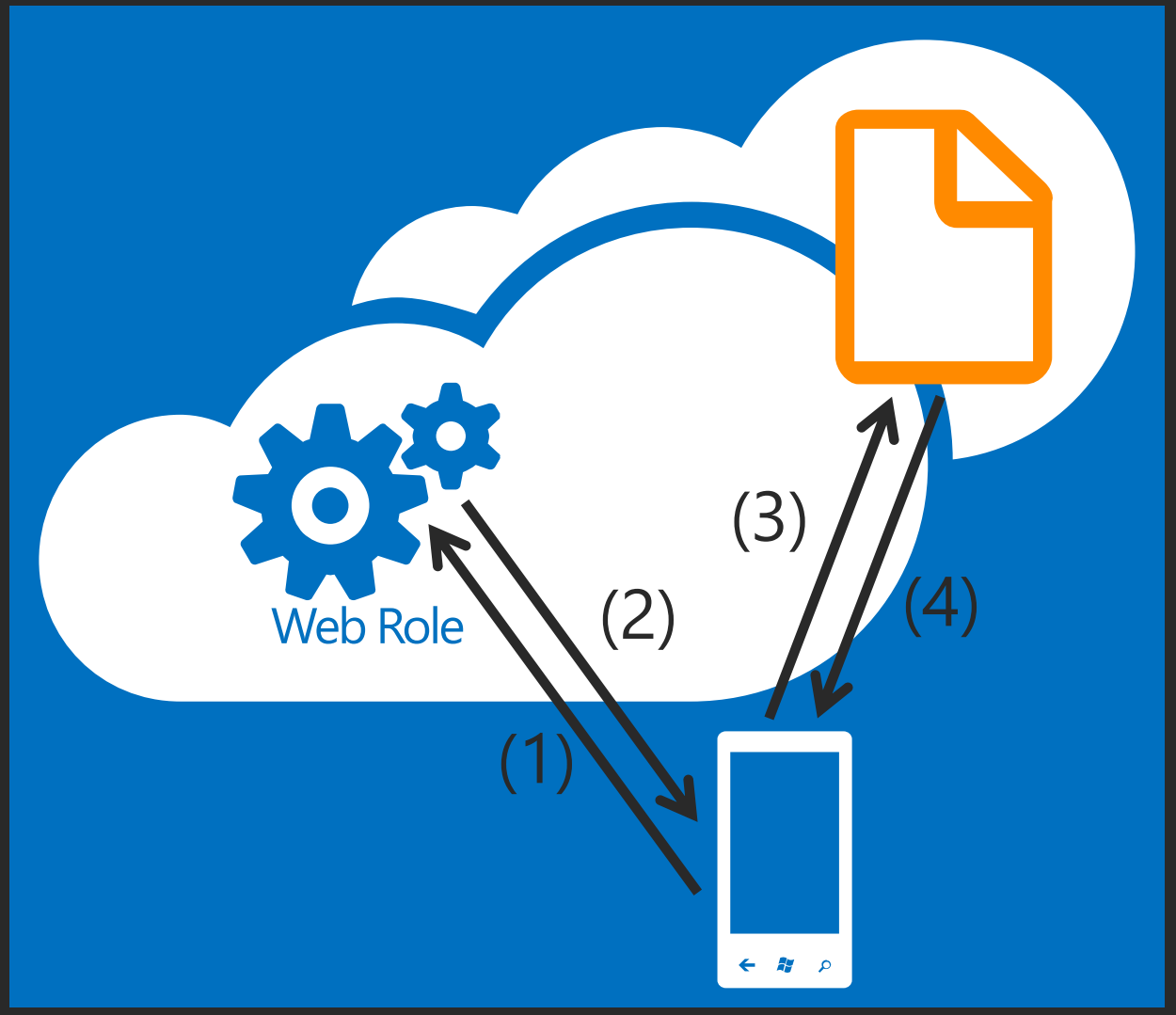
Shared Access Signatures (SAS)

(1) client makes request of web role for SAS

(2) web role sends client SAS

(3) client makes request

(4) client gets response



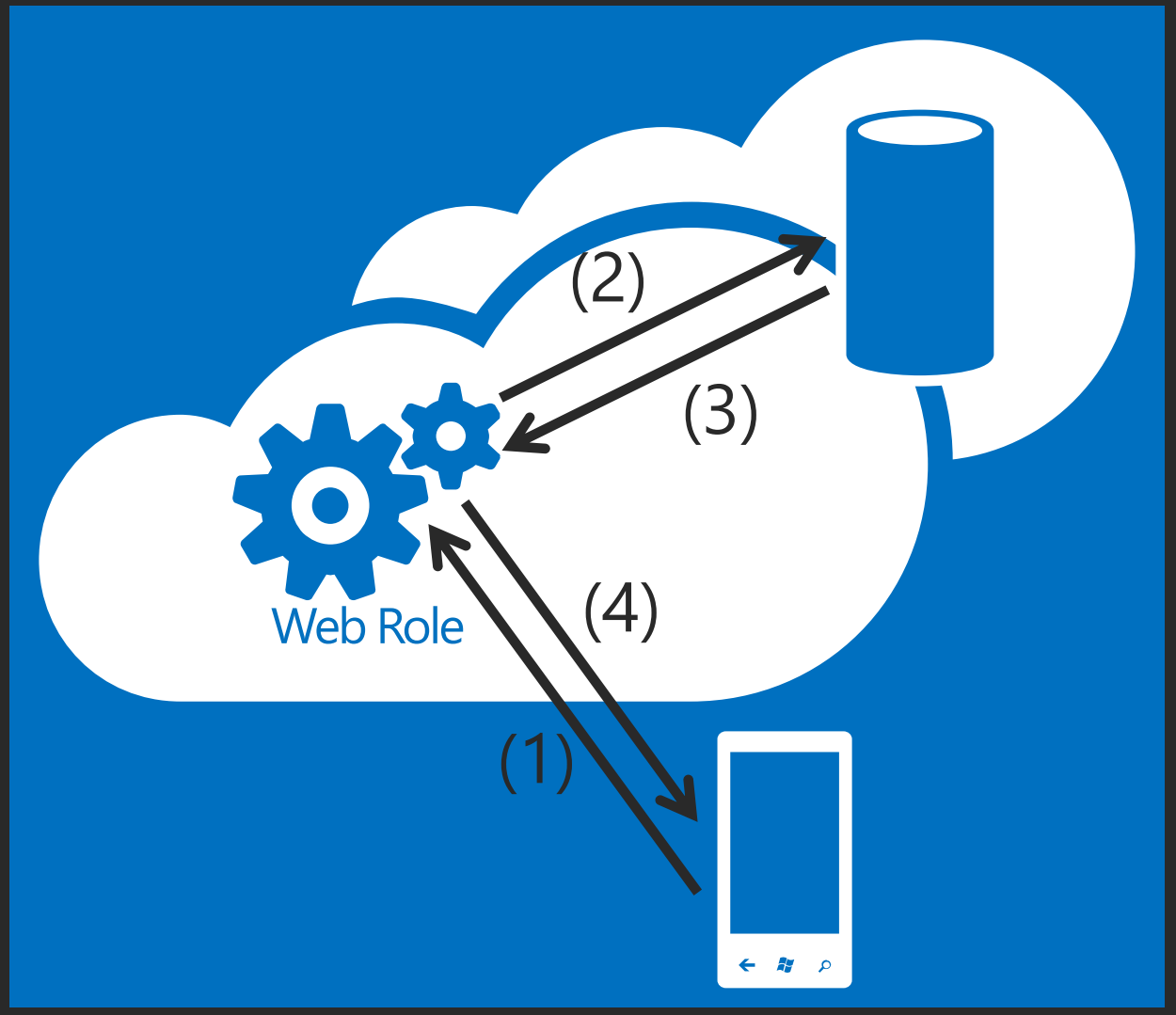
Windows Azure SQL Database

(1) client sends request to proxy

(2) proxy makes SQL call against SQL Azure

(3) SQL Azure returns a response

(4) proxy returns response to device

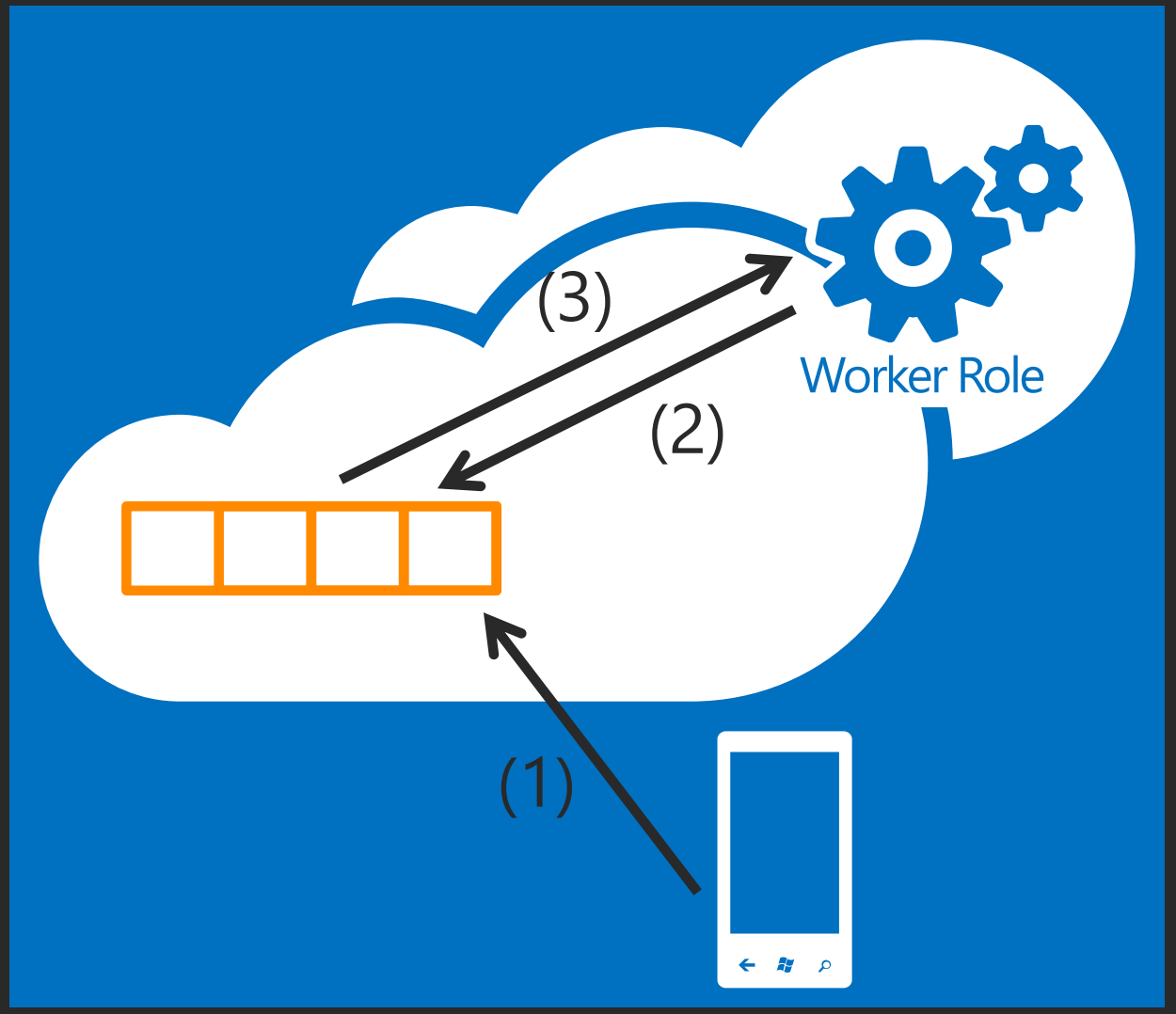


offloading work through queues

(1) client writes a message to a queue

(2) worker role is polling the queue

(3) worker role finds the message



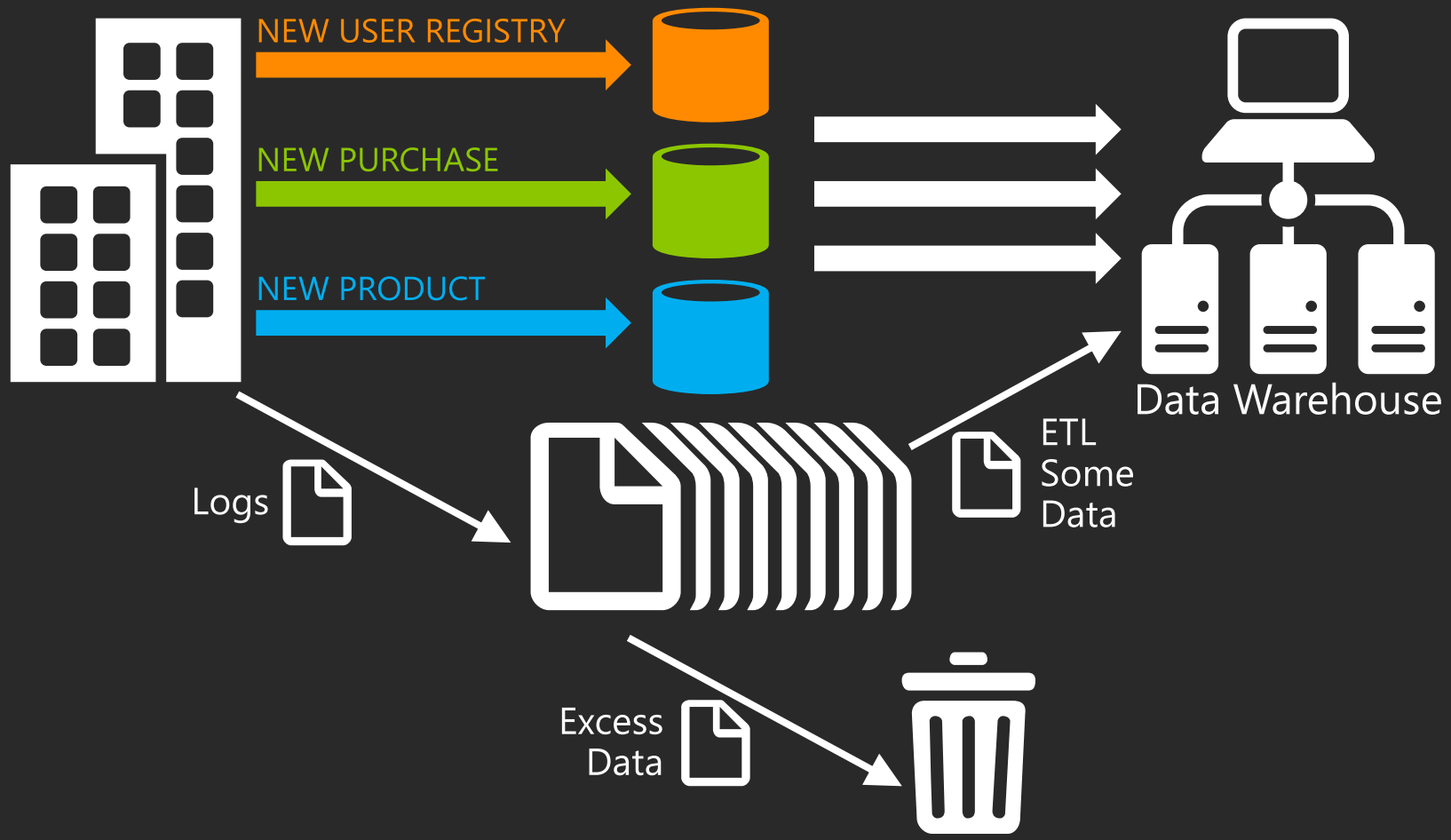
Bing ingests > 7 petabytes a month

the twitter community generates over 1 terabyte of tweets every day

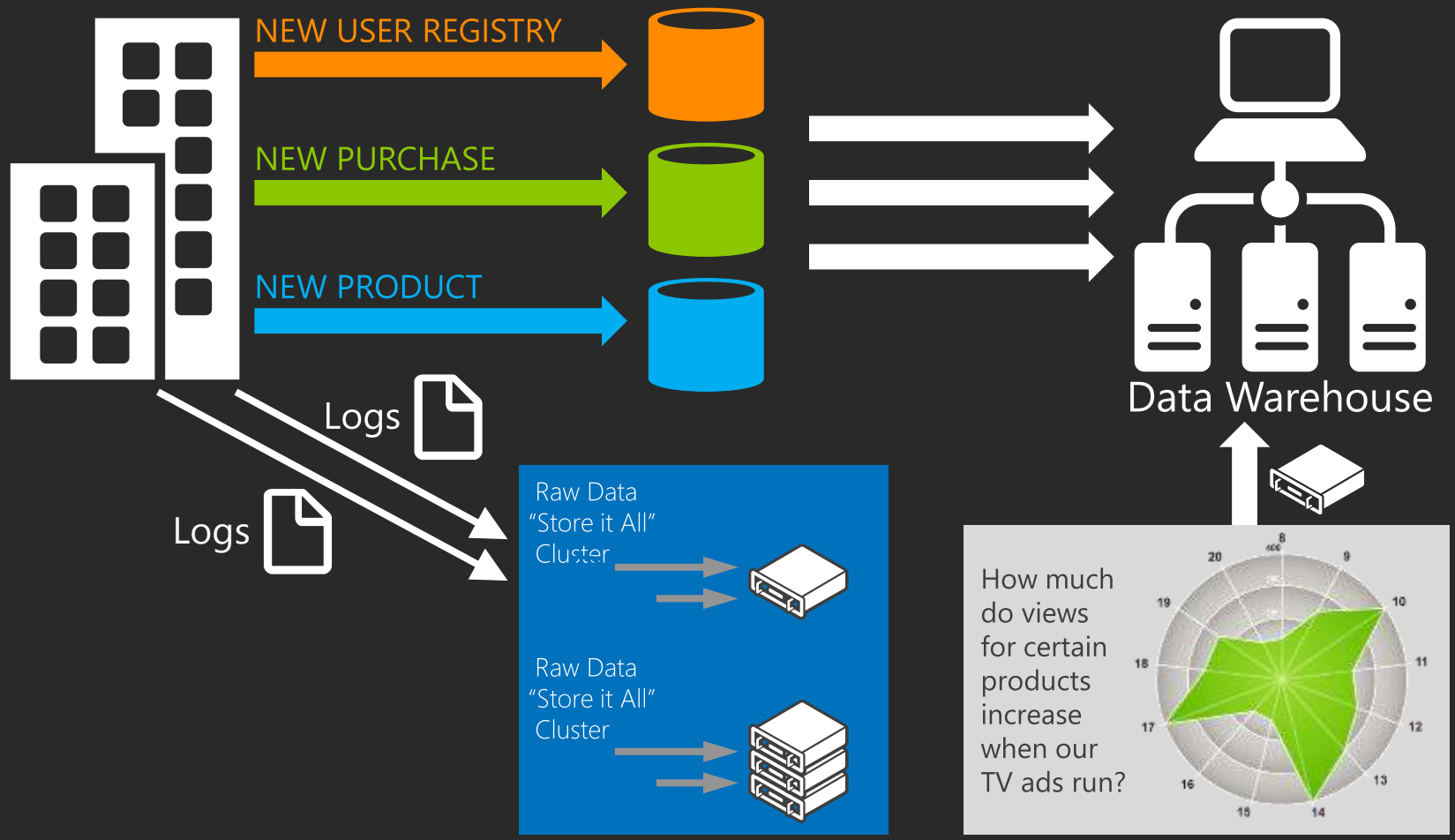
Cisco predicts that by 2013 annual internet traffic flowing will reach 667 exabytes

Sources: The Economist, Feb ‘10; DBMS2; Microsoft Corp

traditional e-commerce data flow



new e-commerce big data flow

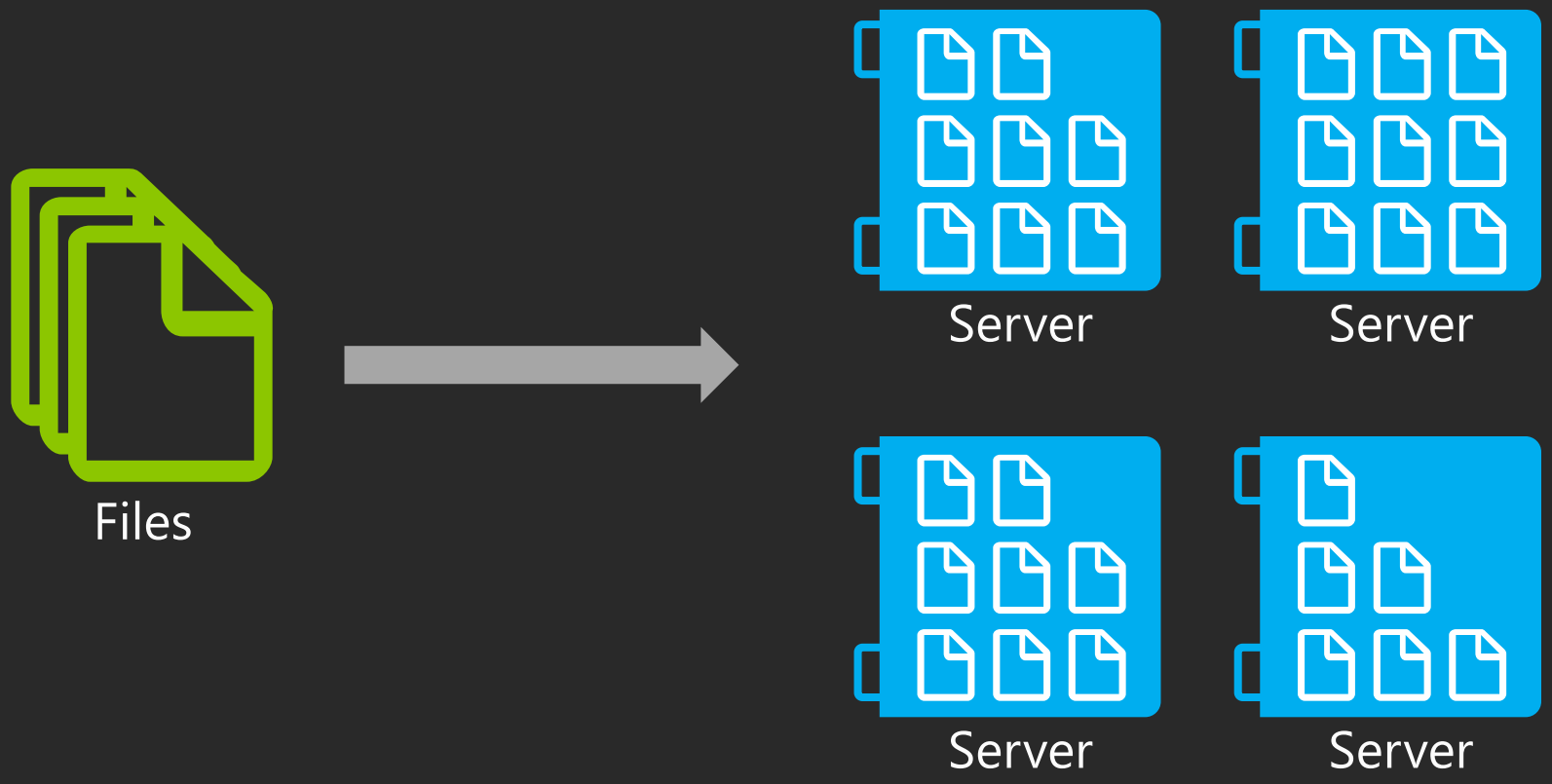


understanding the basics

move the compute to the data

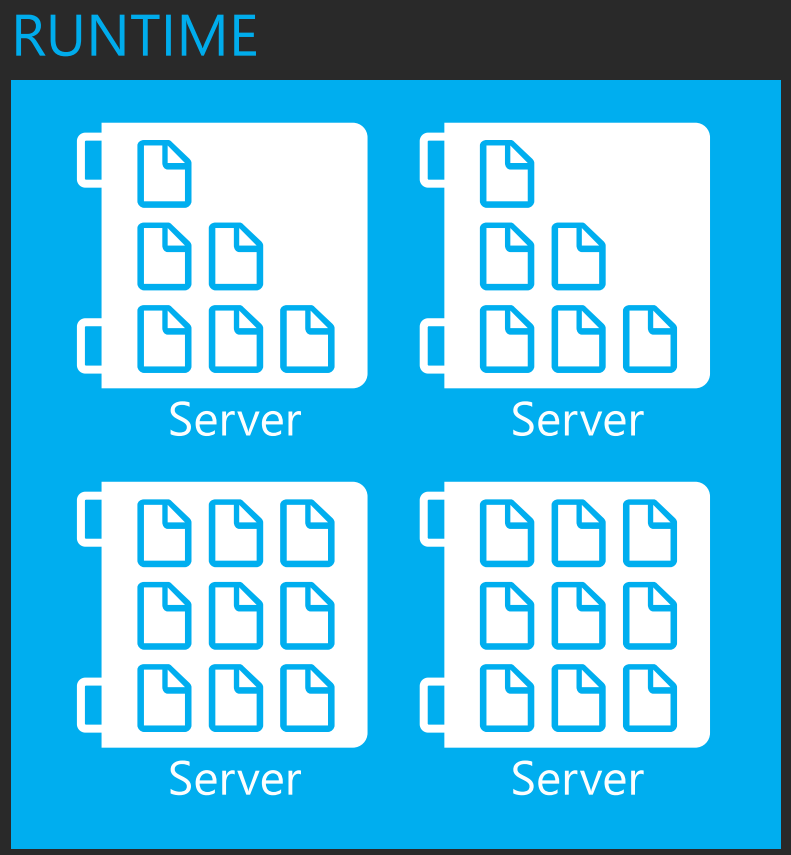
how does It work?

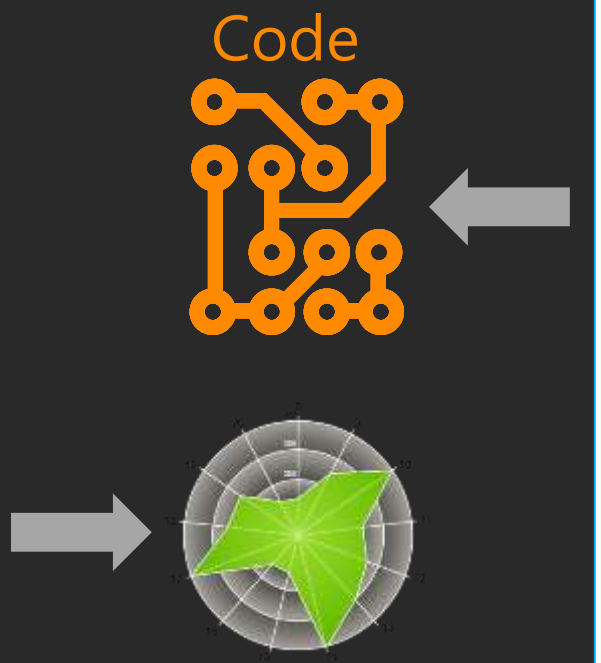
FIRST, STORE THE DATA



how does It work?

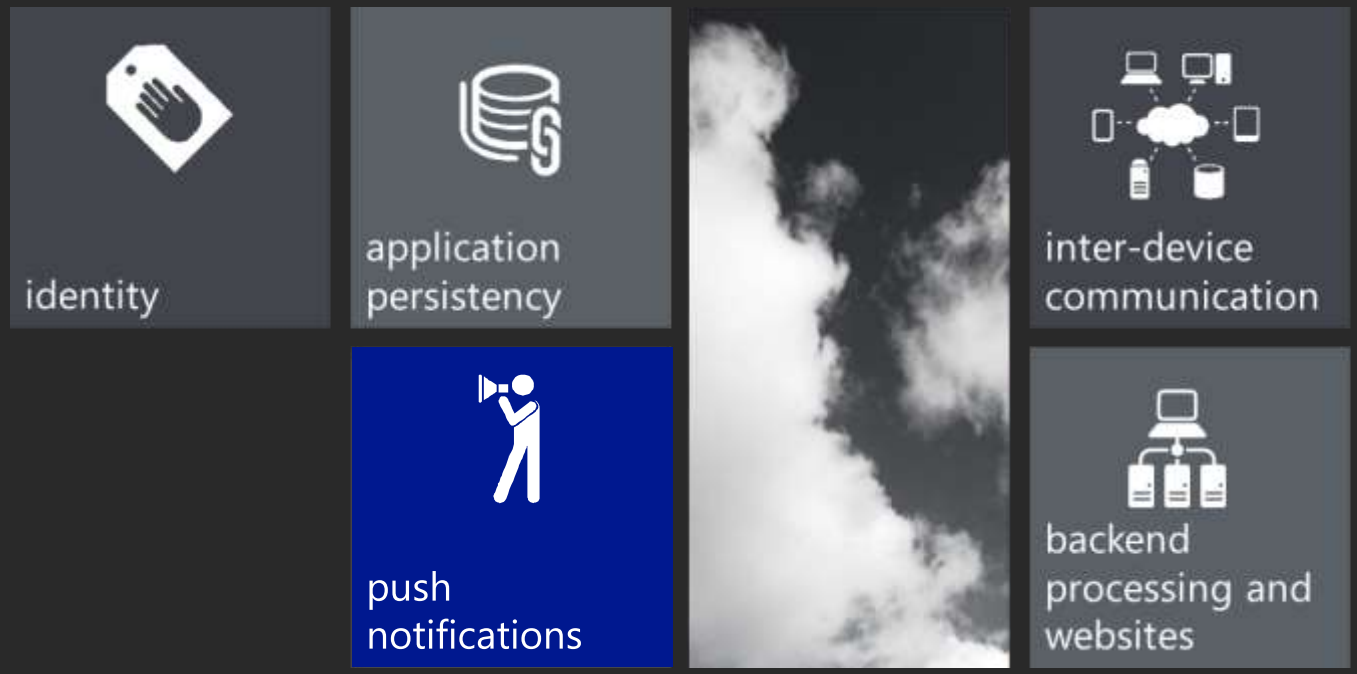
SECOND, MOVE CODE TO DATA



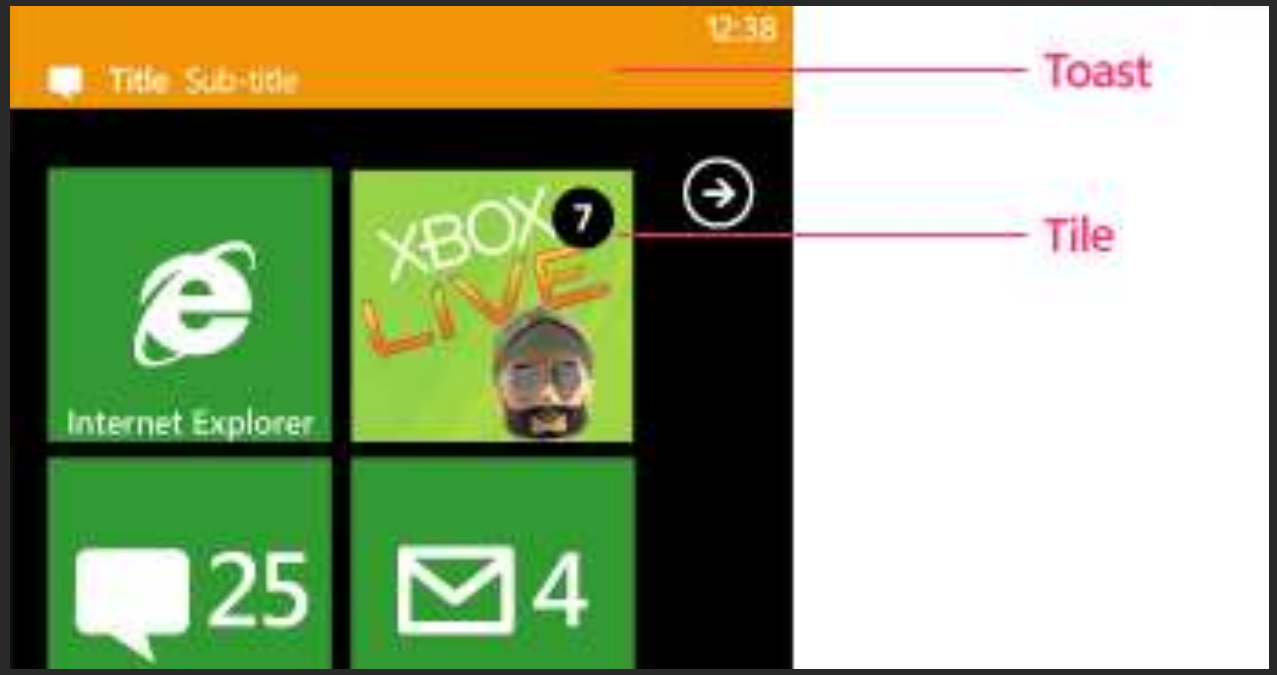



```
// Map Reduce function in JavaScript

var map = function (key, value, context) {
var words = value.split(/[^a-zA-Z]/);
for (var i = 0; i < words.length; i++) {
          if (words[i] !== "")
context.write(words[i].toLowerCase(),
1);}
}};

var reduce = function (key, values, context)
{
var sum = 0;
while (values.hasNext()) {
sum += parseInt(values.next());
     }
context.write(key, sum);
};
```

core cloud capabilities



push notifications



Single connecting between the device and the notification service

Bandwidth- and battery-friendly

No guarantee of delivery

subscribing to push

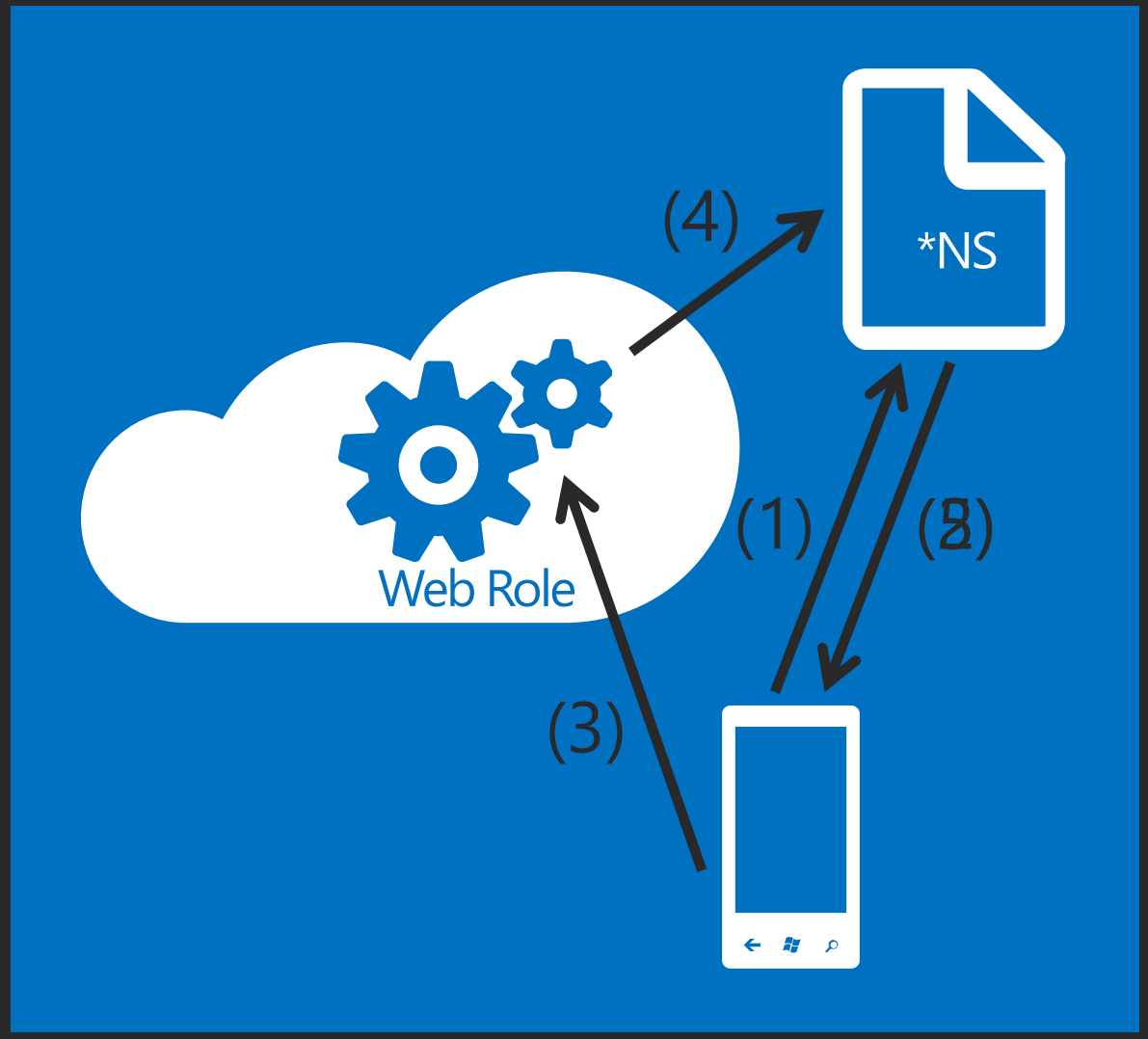
(1) device requests a channel
requesting app uses push client platform

(2) *NS returns channel

(3) device sends URL to service
Channel URL is stored in cloud

(4) service sends notification

(5) *NS pushes to device



cloud-initiated to device

common pattern

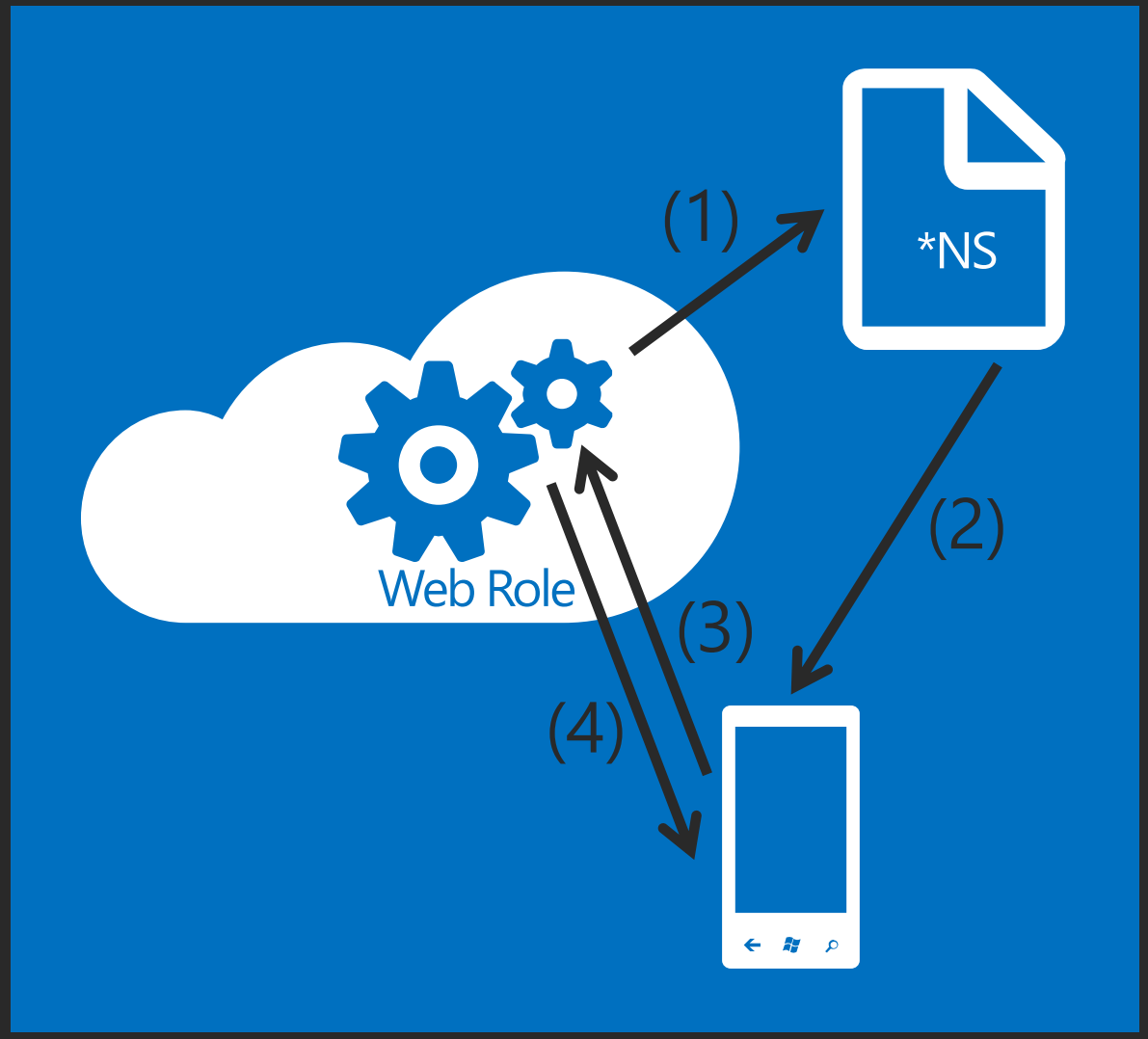
cloud-initiated push to tell the device to call to a service

(1) service sends notification

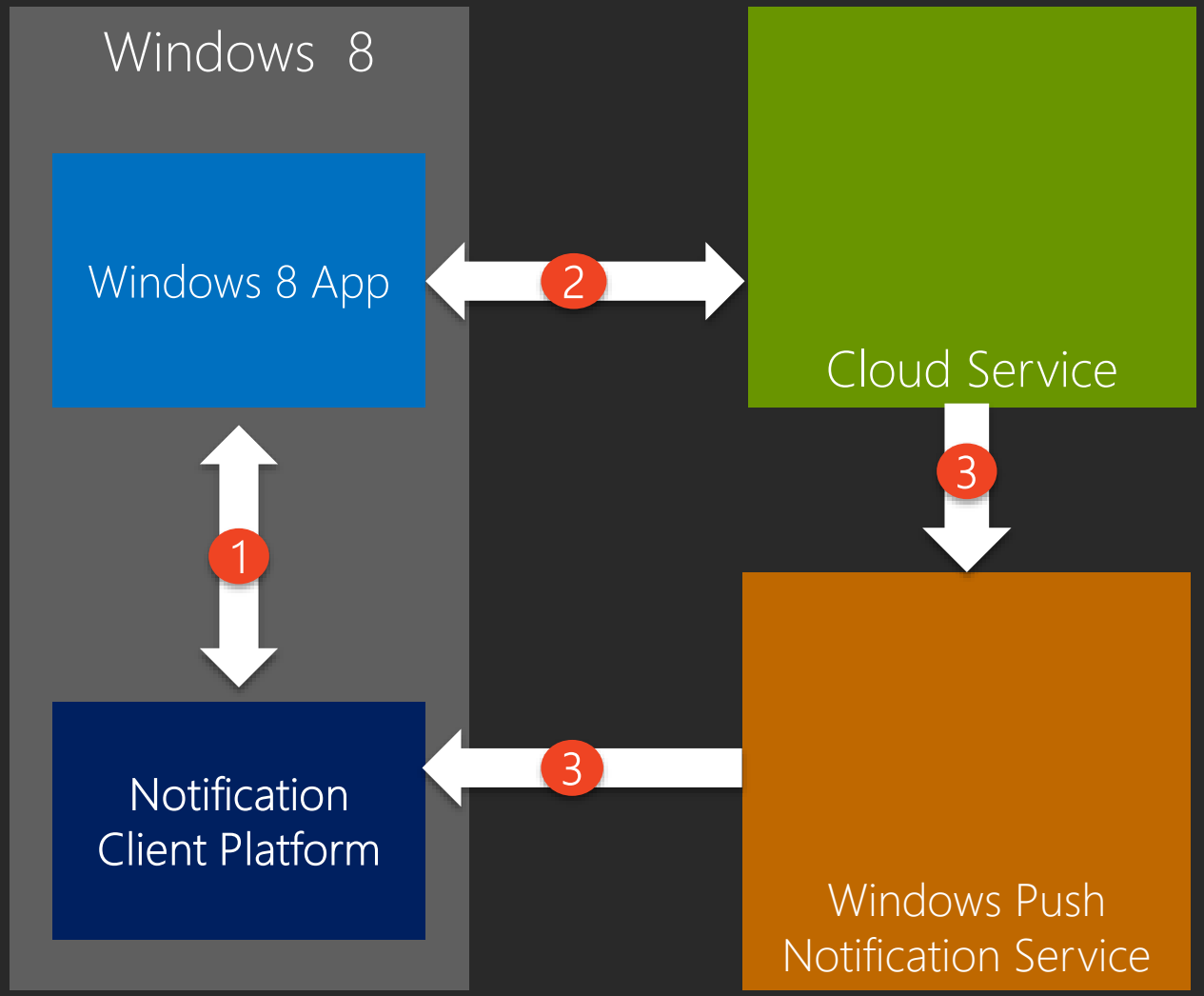
(2) notification services pushes to device

(3) device receives message and calls to a service

(4) web role sends a response



overview push notification Windows 8



(1) request channel URI

(2) register with service

(3) authenticate & push notification

different platforms – different services

Windows 8

Windows Push Notification Service (WNS)

Windows Phone

Microsoft Push Notification Service (MPNS)

iOS

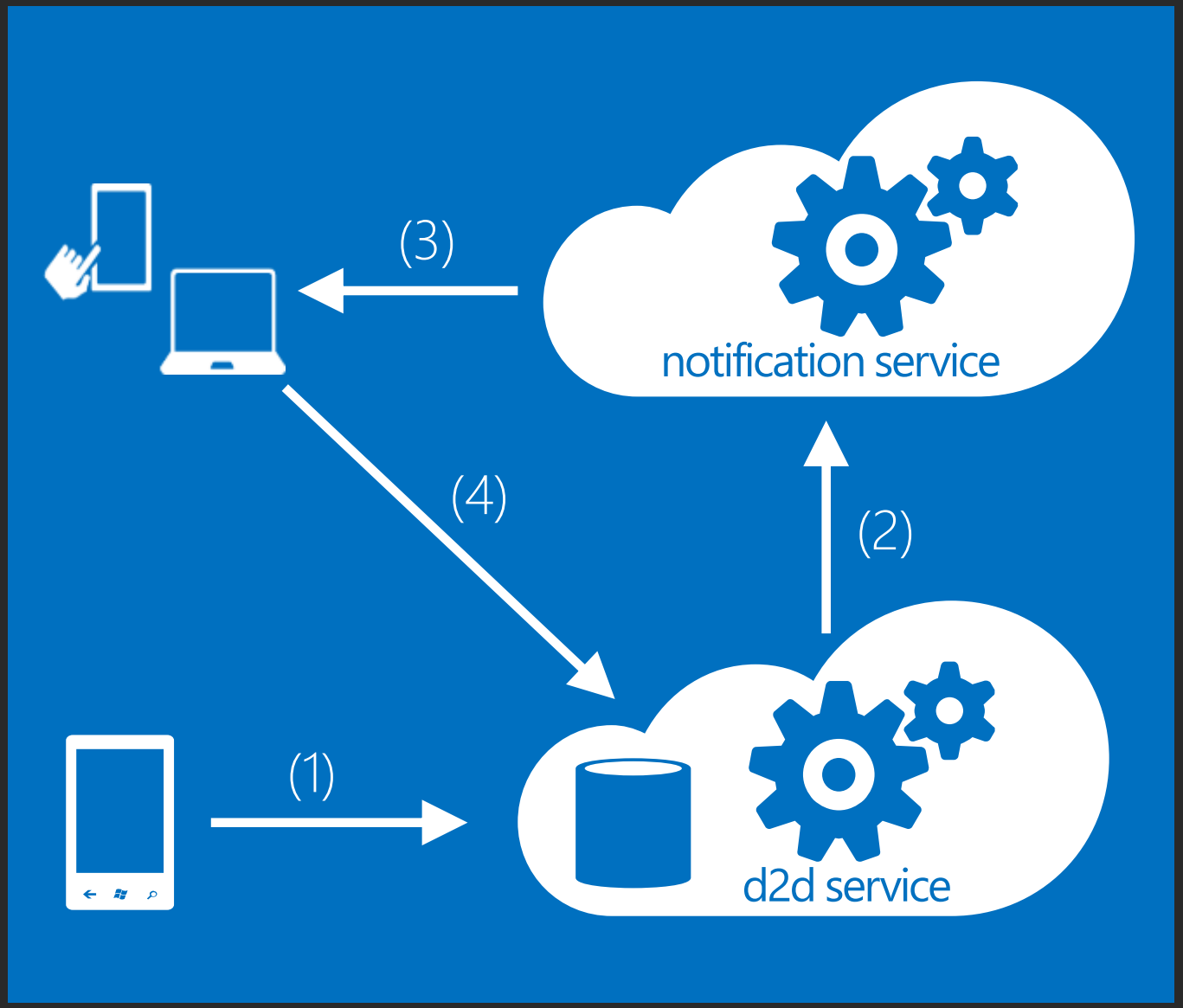
Apple Push Notification Service (APNS)

Android

Cloud To Device Messaging (C2DM)

core cloud capabilities

device to device communication



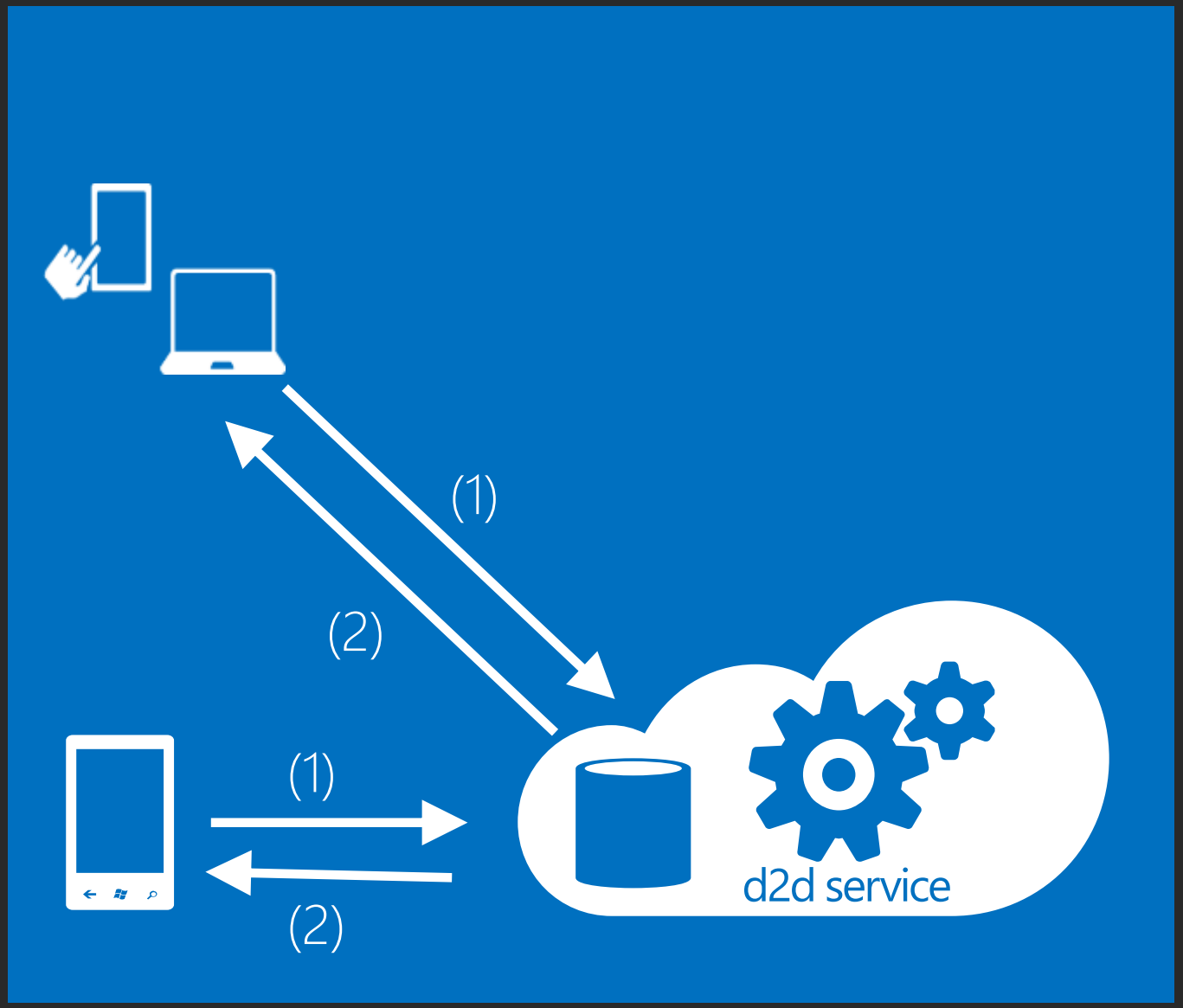
(1) device initiates data share

(2) d2d services stores data and requests push notification for target device(s)

(3) *NS notifies device(s)

(4) device retrieves data from d2d service

device to device communication



(1) Establish duplex communication channel (WebSocket/SignalR)

(2) server pushes data to client

conclusion

the cloud enables core App capabilities

Windows Azure is Microsoft's cloud platform

it provides 1st class PaaS & IaaS

and is open