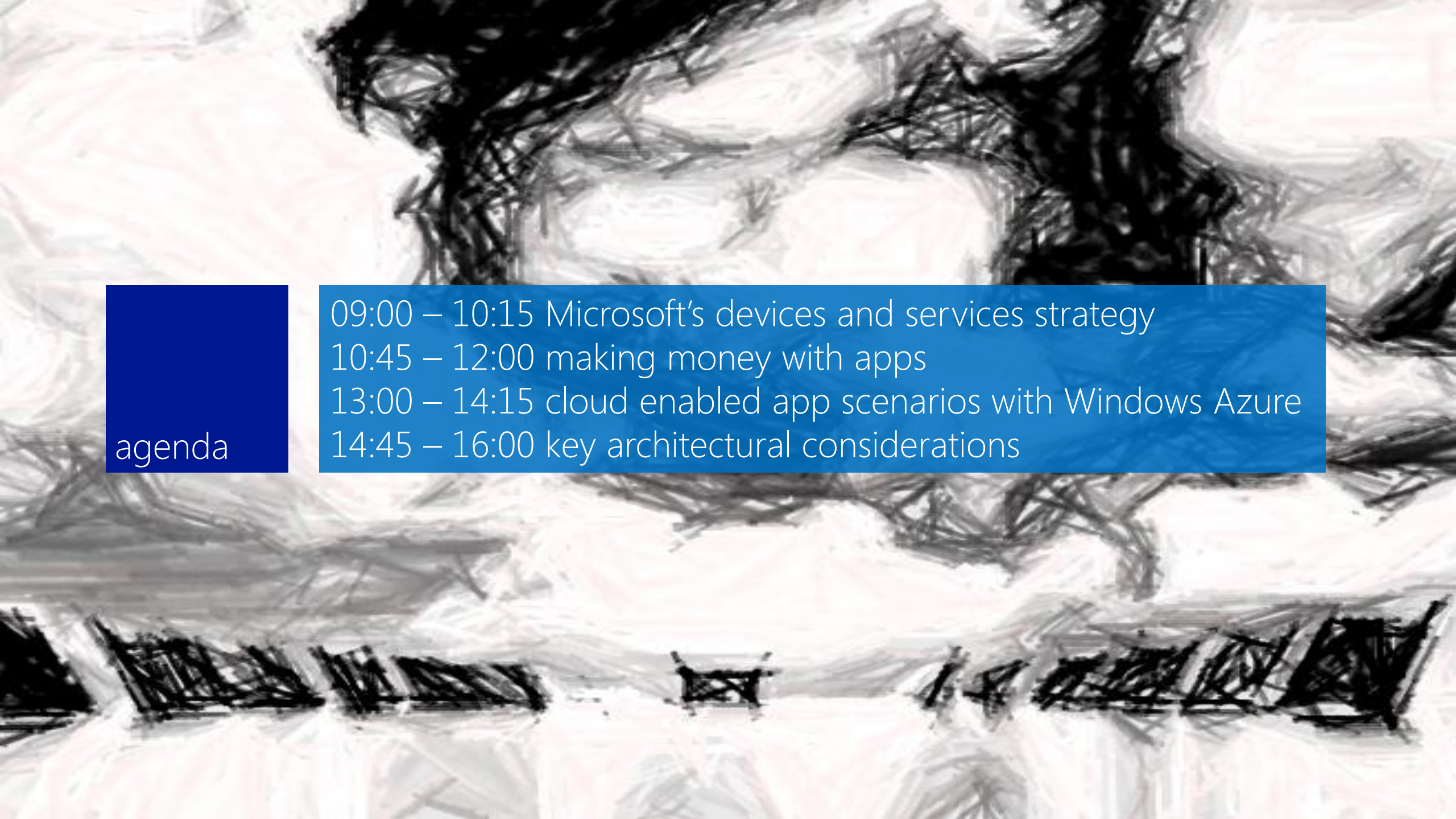
cloud strategy day

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

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

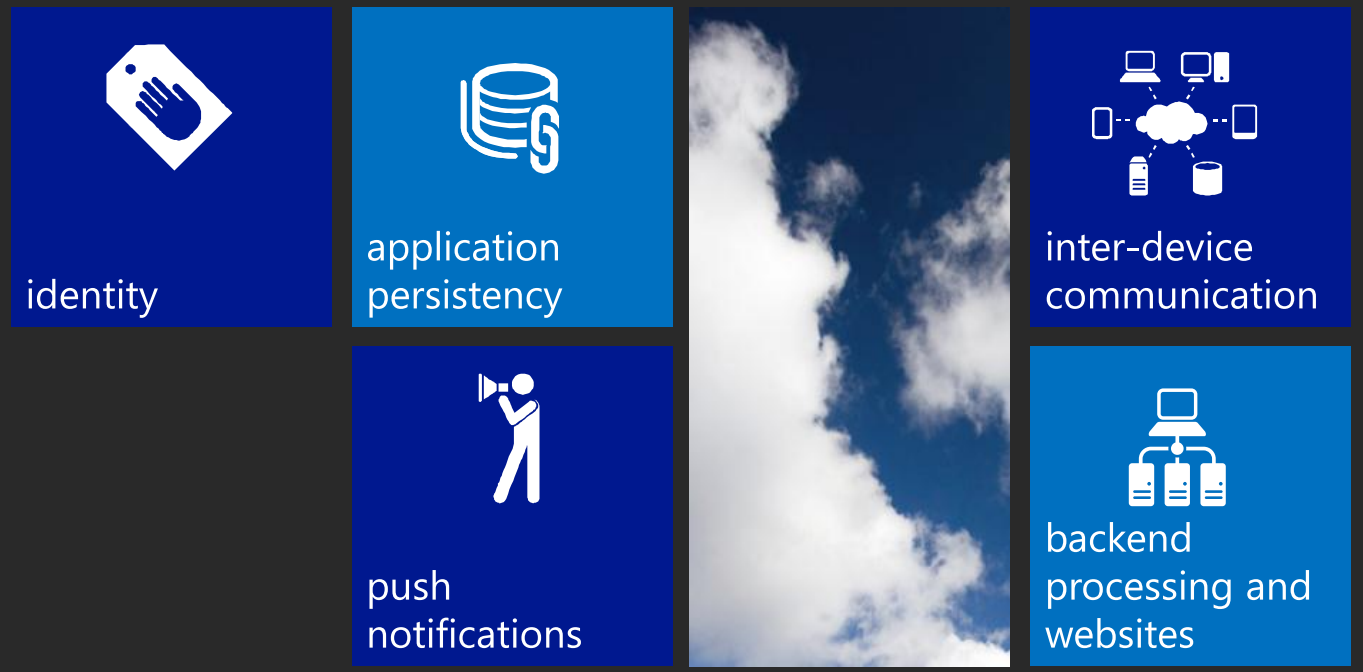


agenda

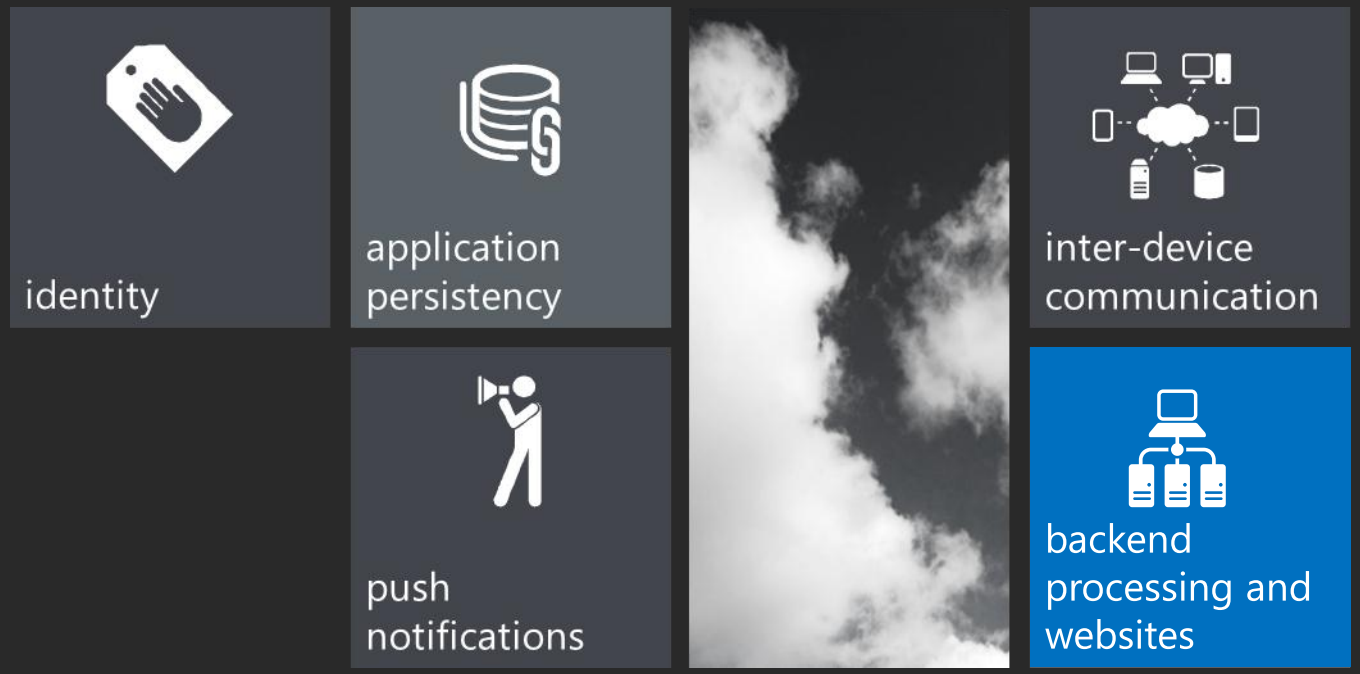
09:00 – 10:15 Microsoft's devices and services strategy
10:45 – 12:00 making money with apps
13:00 – 14:15 cloud enabled app scenarios with Windows Azure
14:45 – 16:00 key architectural considerations

chapter III

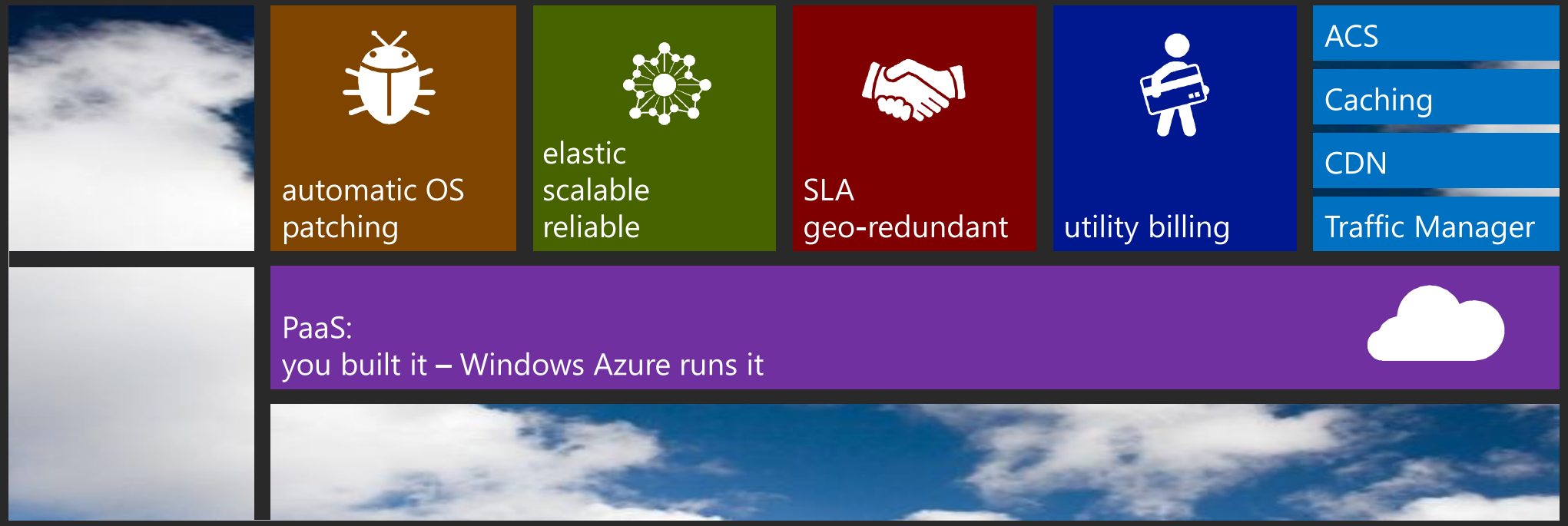
core cloud capabilities



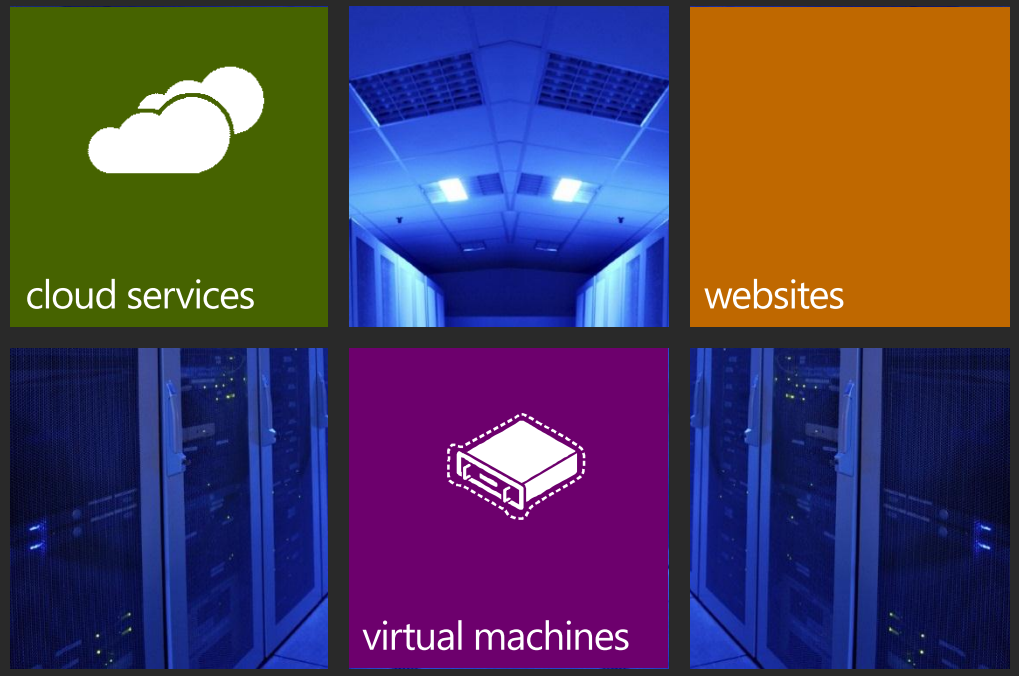
core cloud capabilities



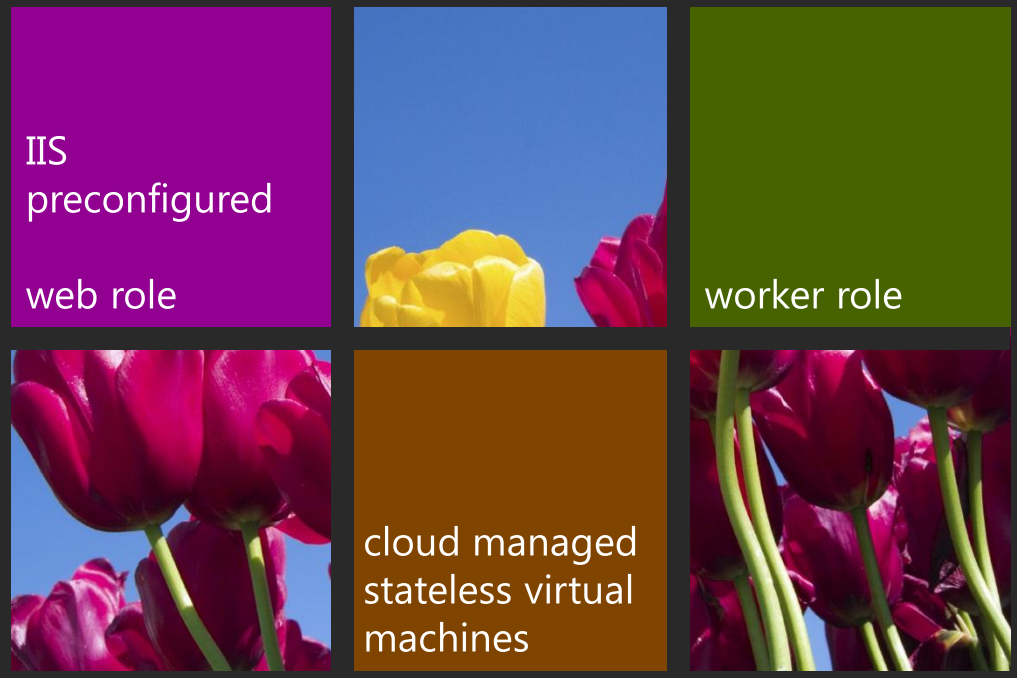
Windows Azure



compute



Windows Azure Cloud Services



Windows Azure Virtual Machines

Management Portal

Scripting
(Windows,
Linux and Mac)

REST API

Windows Server 2008 R2 Enterprise

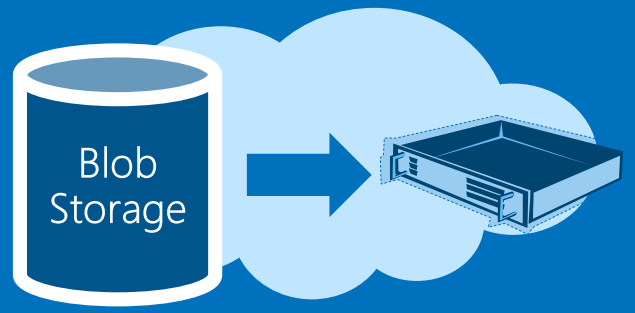
Windows 8

CentOS

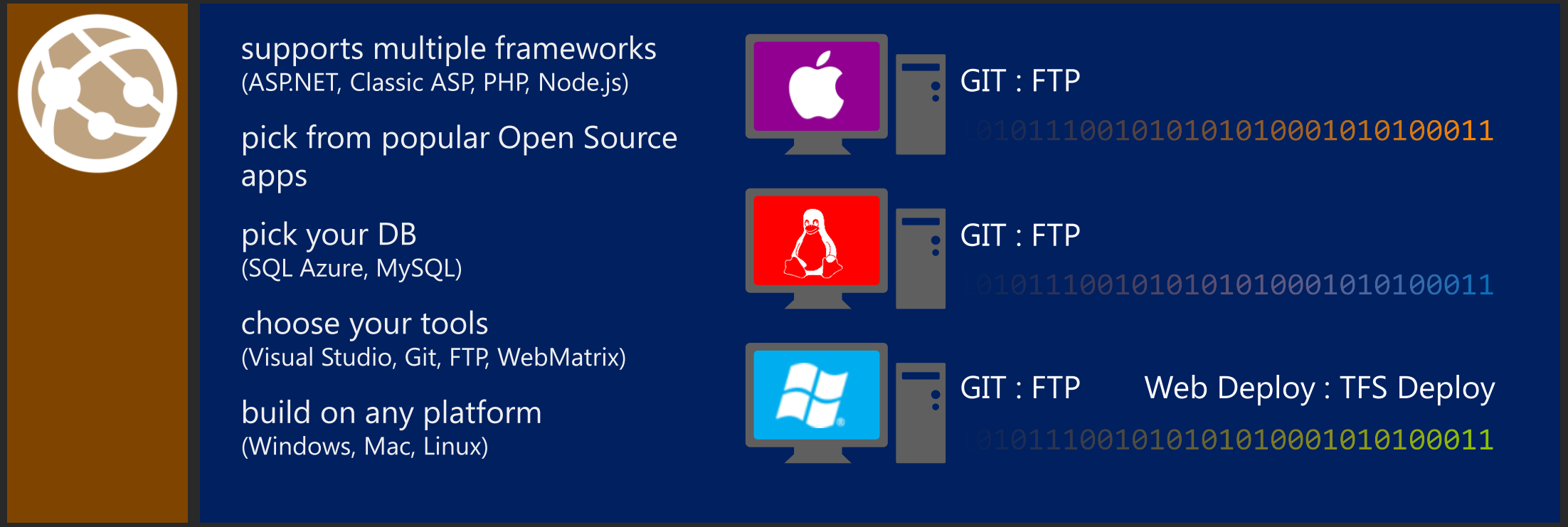
openSUSE

ubuntu

boot VM from new disk

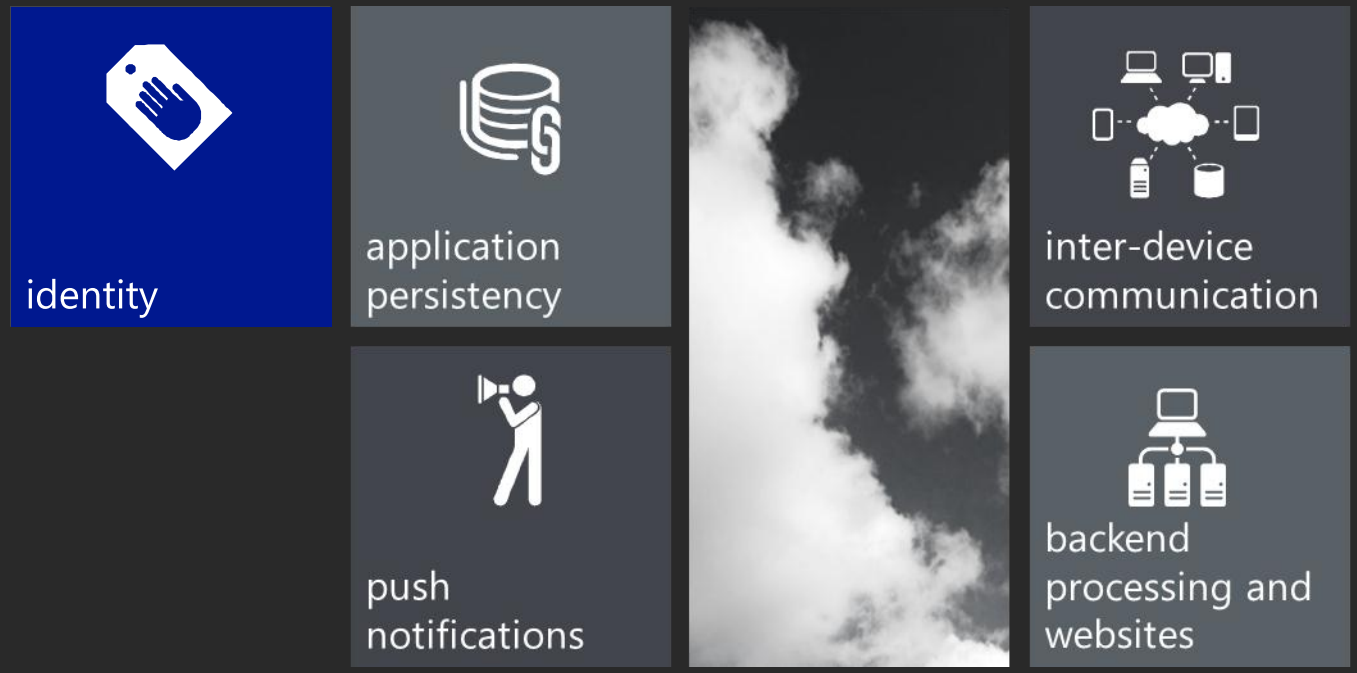


Windows Azure Web Sites

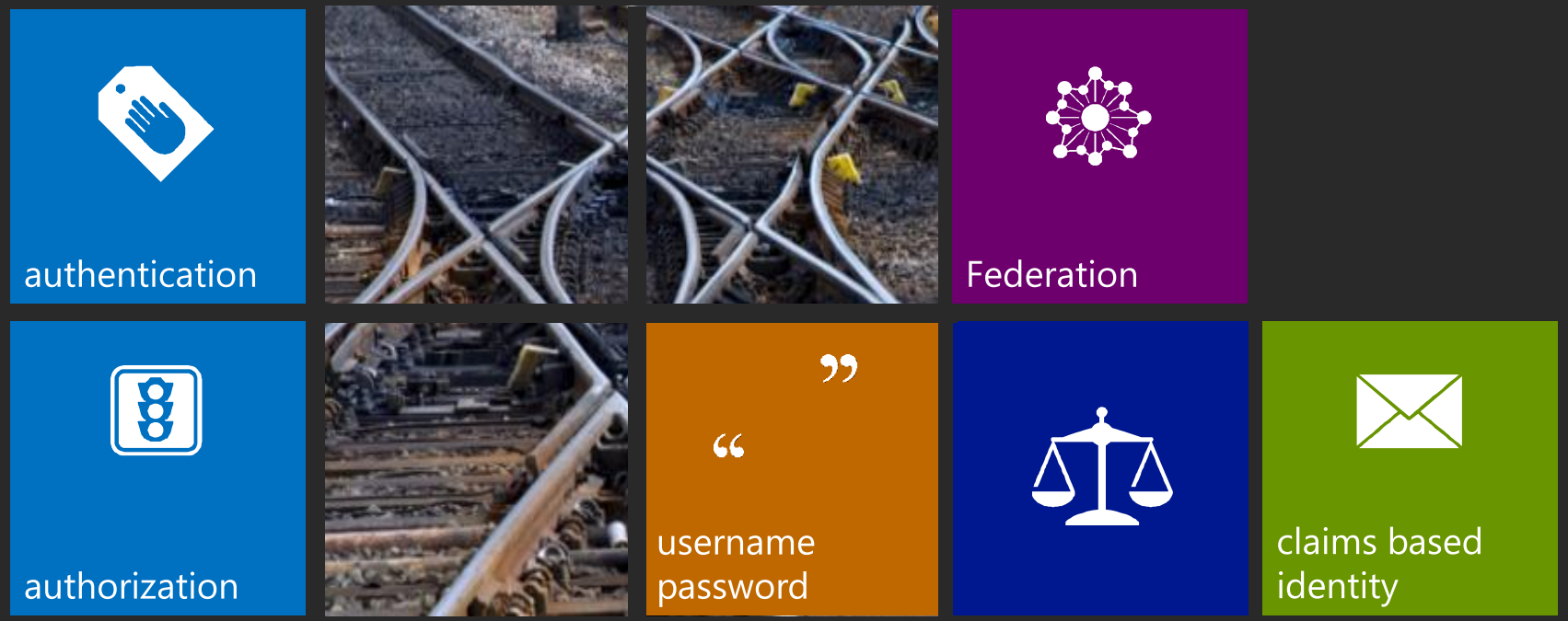



demo:
Windows Azure
part 2

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

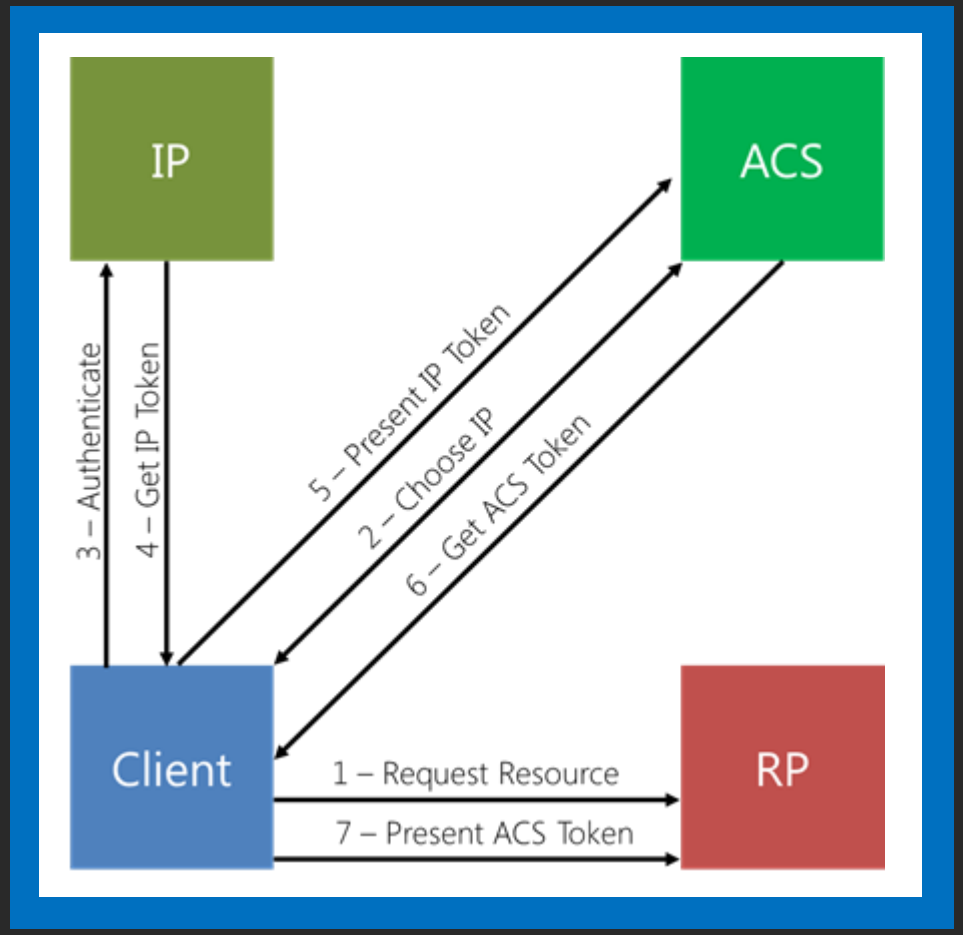
Live Id, Facebook, etc.
develop directly against IdP protocol

outsource identity management

Access Control Service
Windows Azure AD

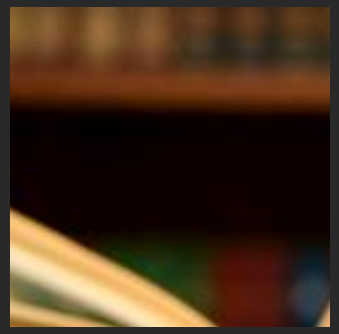

demo:
Access Control
Service in
BabelCam

Access Control Service (ACS)



Windows Azure Active Directory

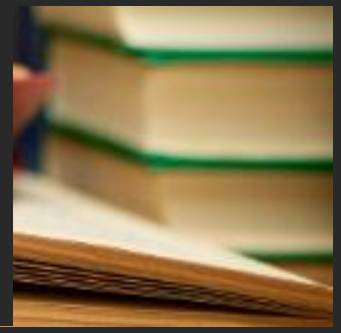
REST based service in the cloud



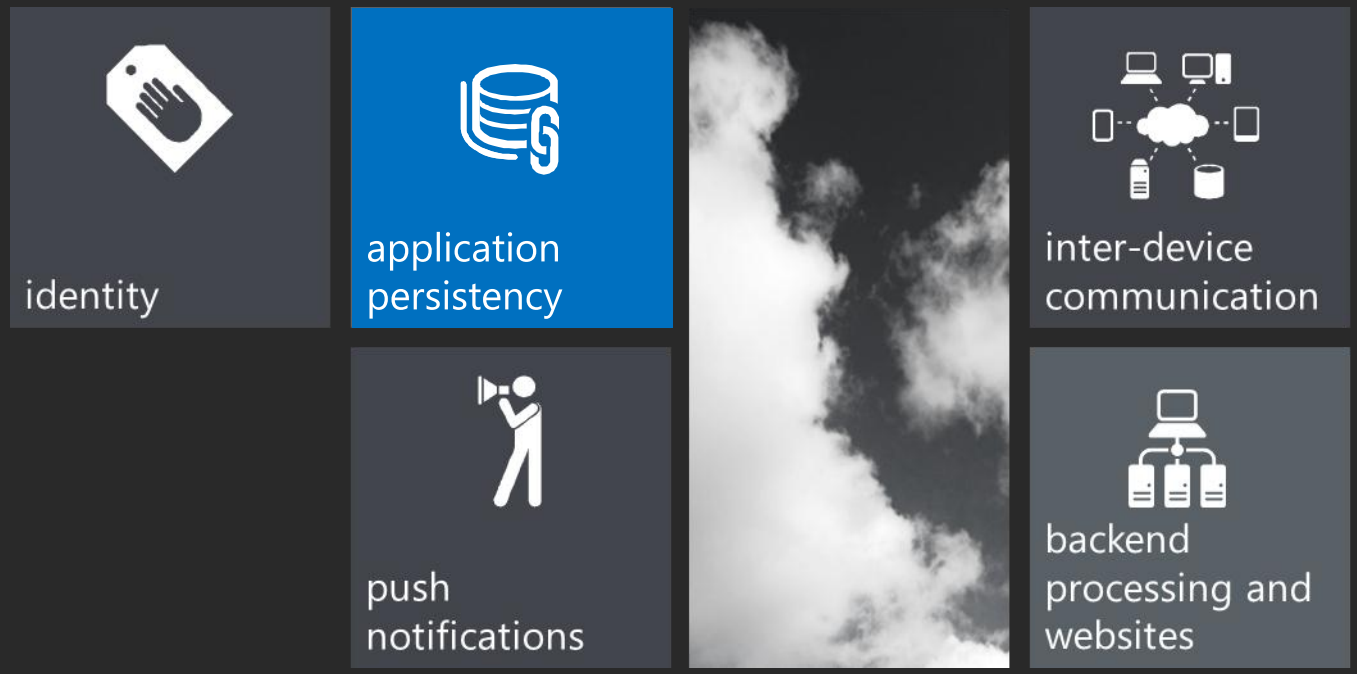
Microsoft Office 365, Dynamics CRM Online, Windows Intune…

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

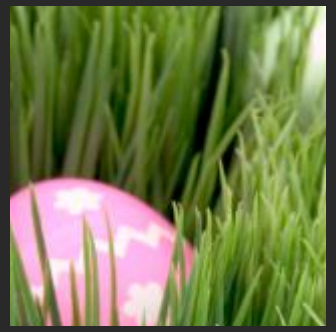
persistent async messaging
enqueue, dequeue

SQL
database

relational database
highly available
managed for you as a service

storage secrets

Windows Azure



SQL database

username
password

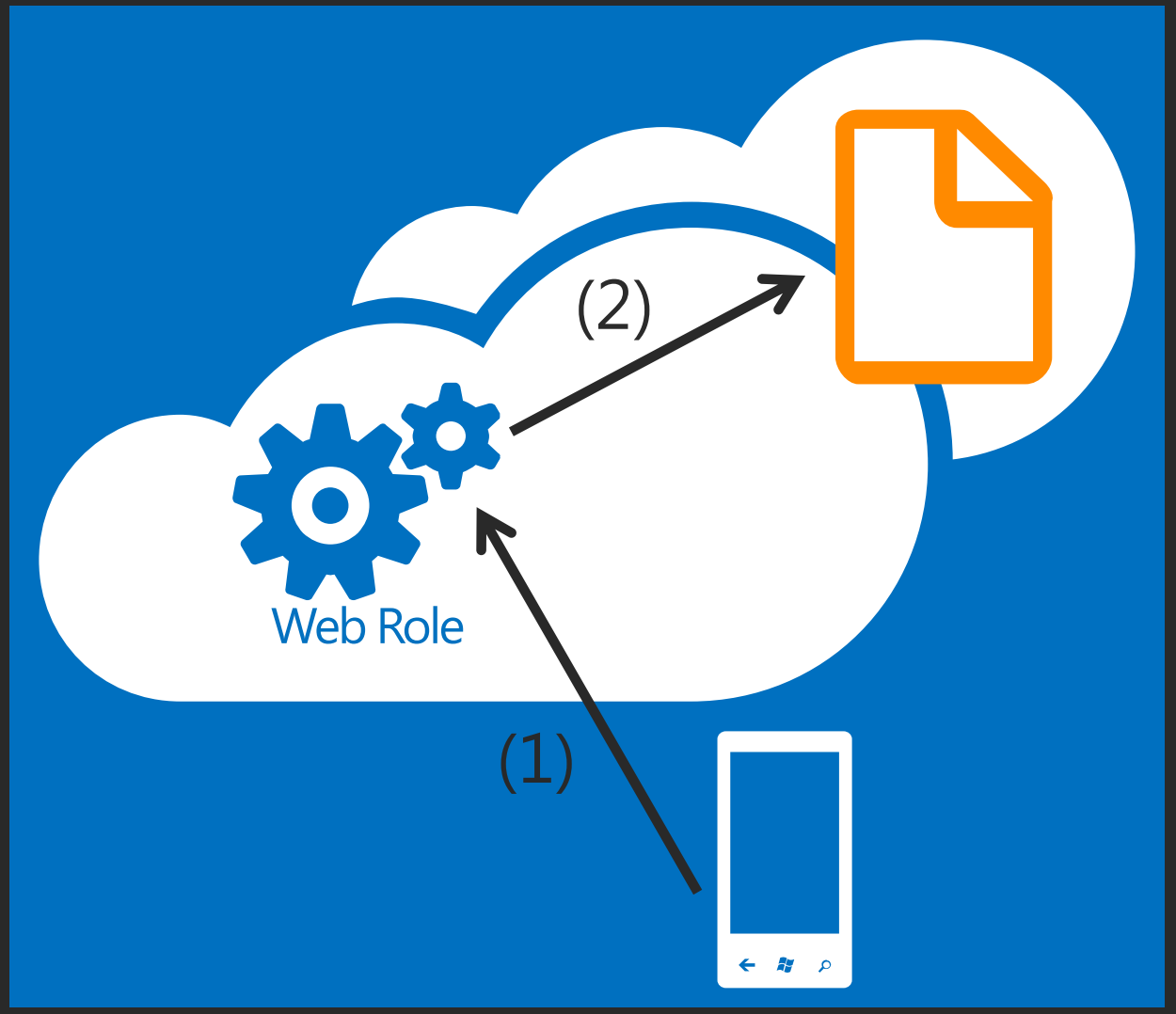
storage name
storage key

keep secrets secret

proxy the requests:

(1) client sends data to web role

(2) web role sends data to storage



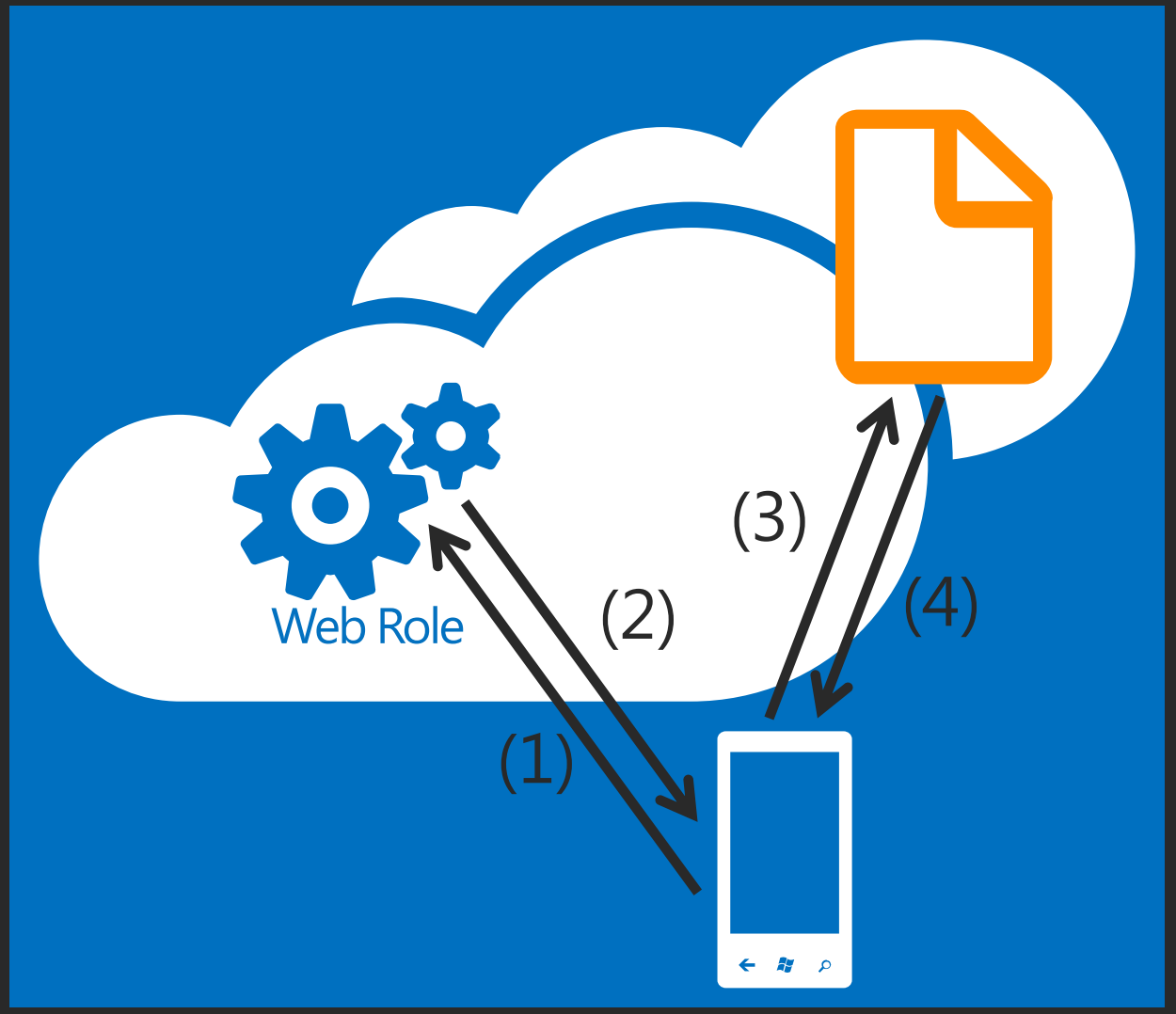
Shared Access Signatures (SAS)

(1) client makes request of web role for SAS

(2) web role sends client SAS

(3) client makes request

(4) client gets response



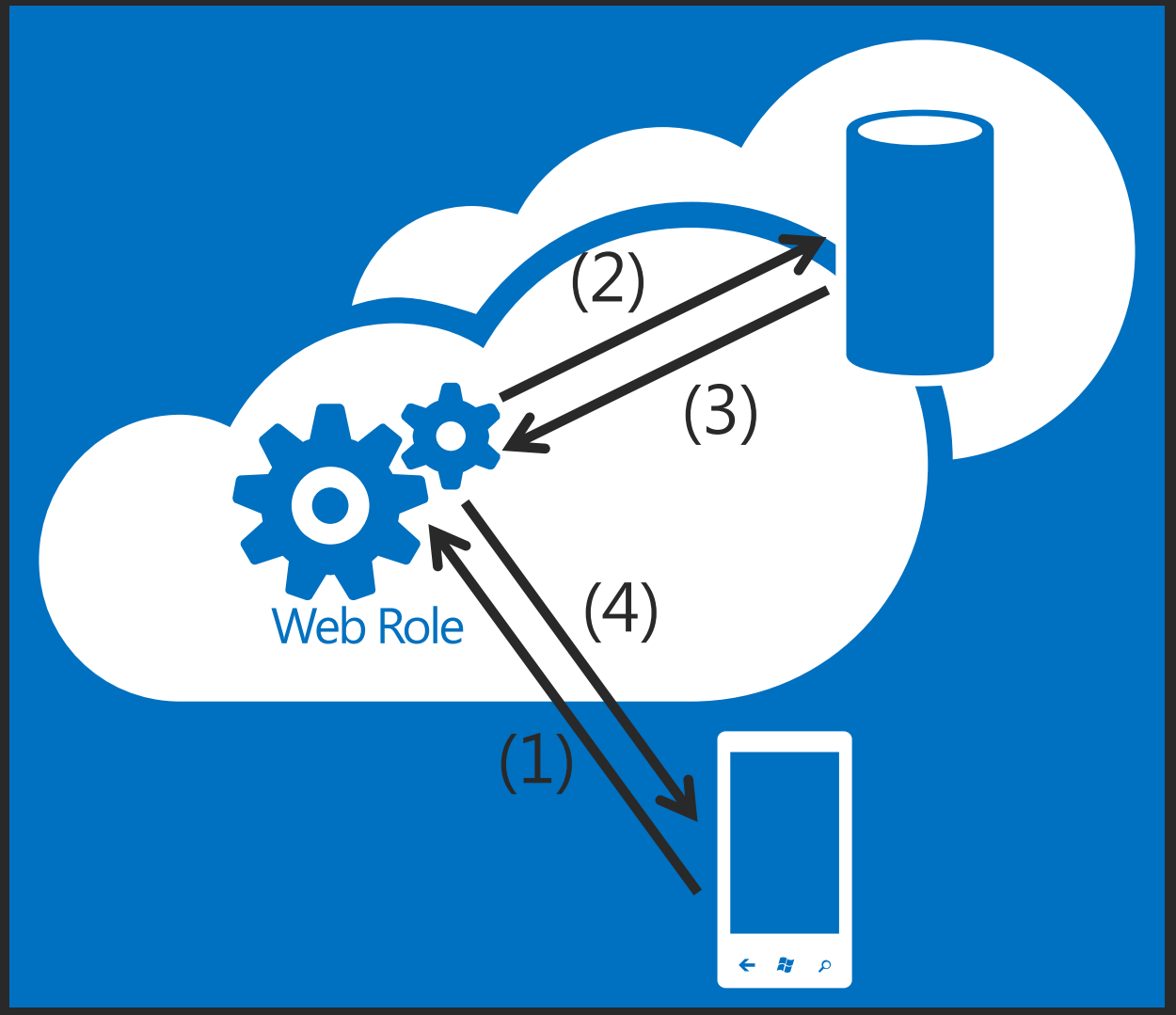
Windows Azure SQL Database

(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

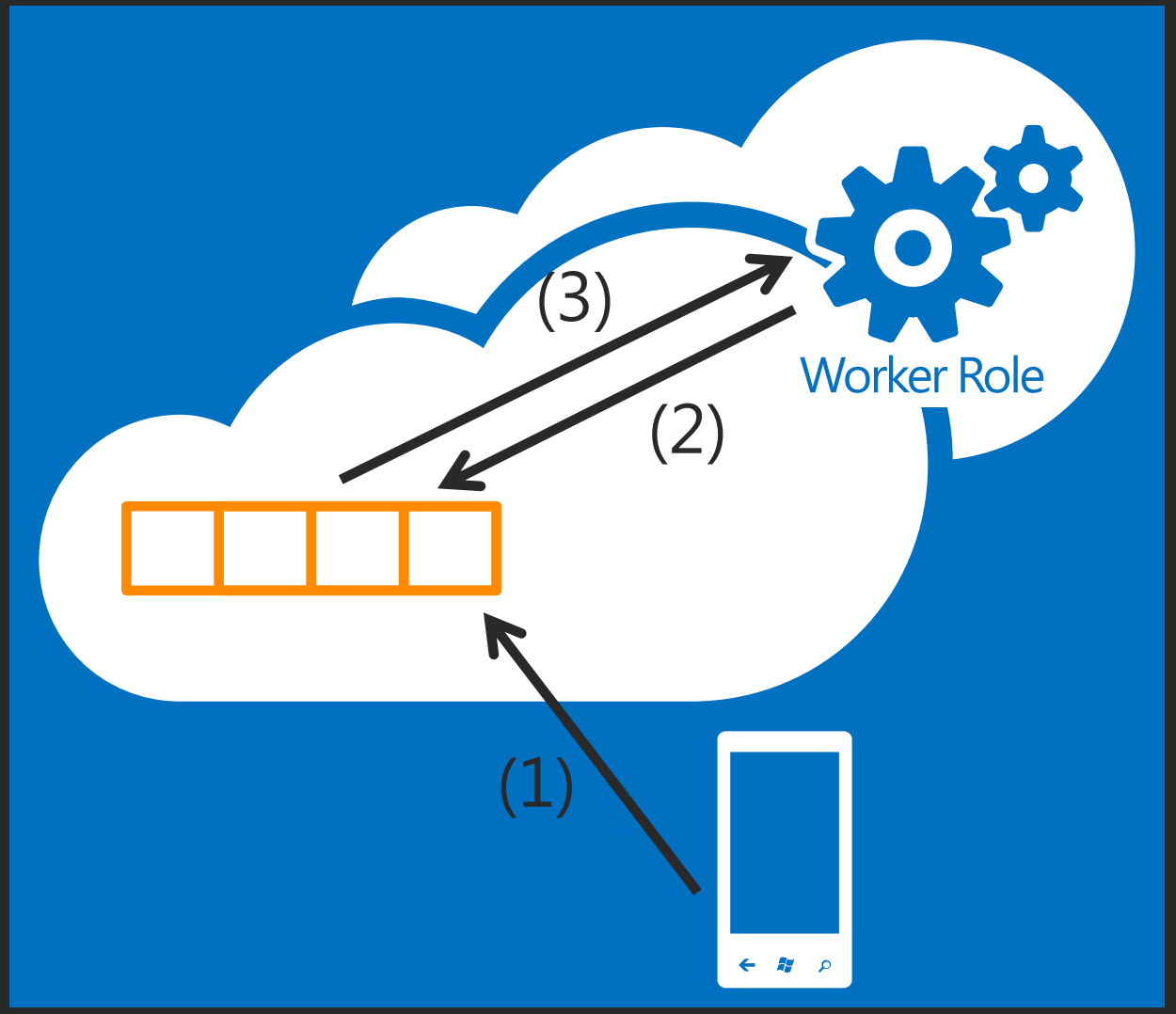


offloading work through queues

(1) client writes a message to a queue

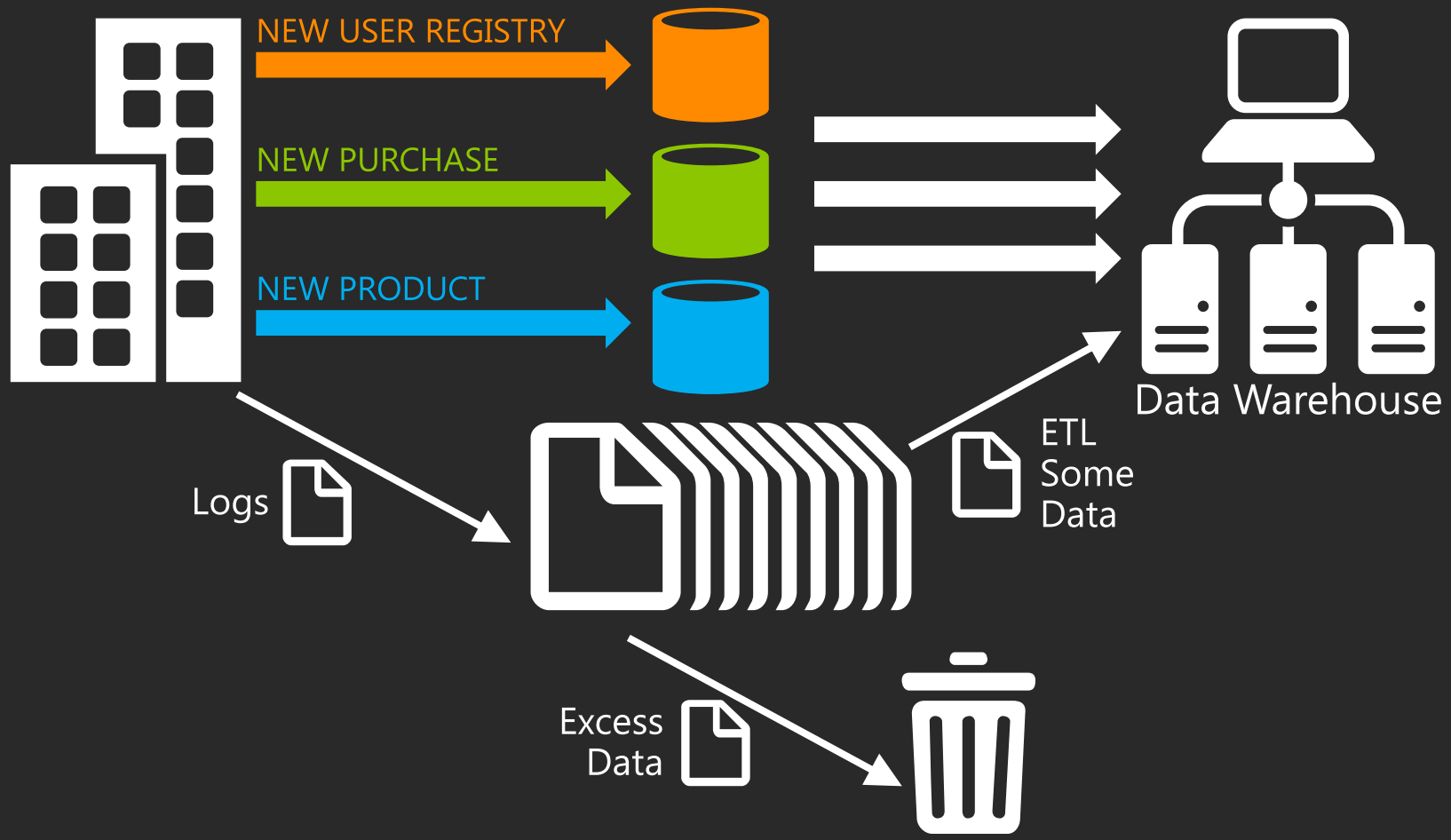
(2) worker role is polling the queue

(3) worker role finds the message

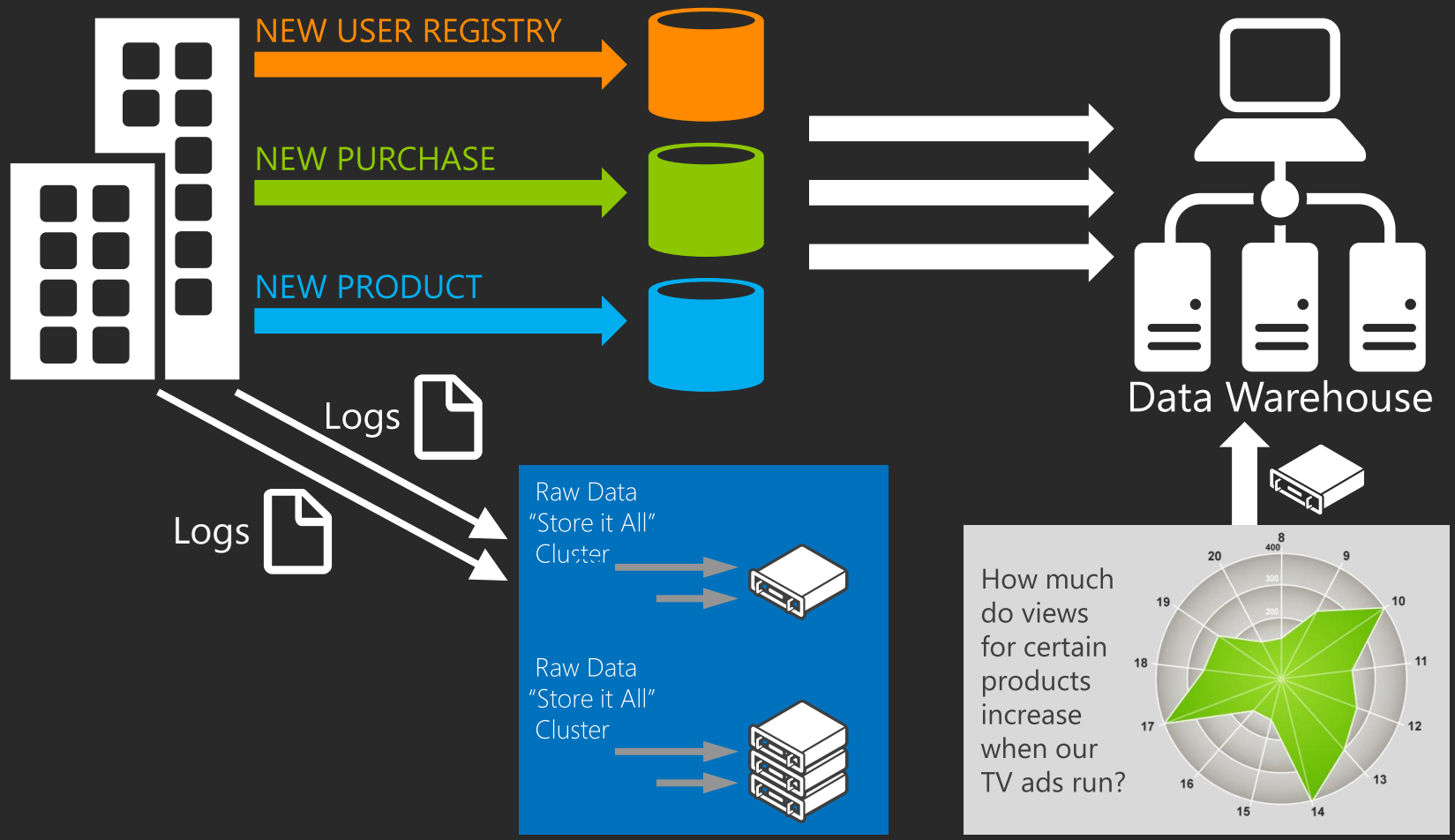



Bing ingests > 7 petabytes
a month
the twitter community
generates over 1 terabyte
of tweets every day
Cisco predicts that by 2013
annual internet traffic flowing
will reach 667 exabytes
Sources: The Economist, Feb ‘10; DBMS2; Microsoft Corp

traditional e-commerce data flow



new e-commerce big data flow

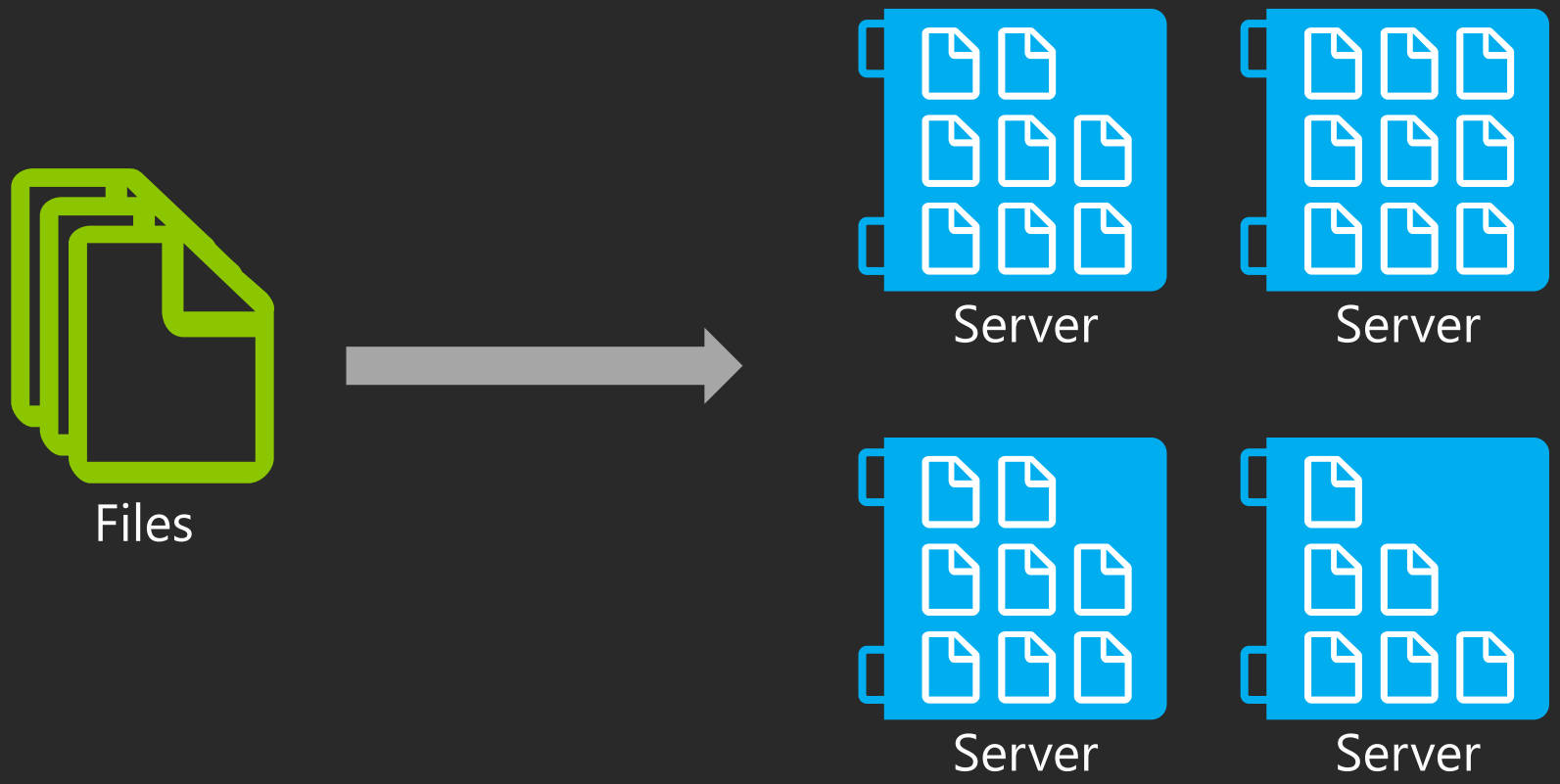


understanding the basics

move the compute to the data

how does It work?

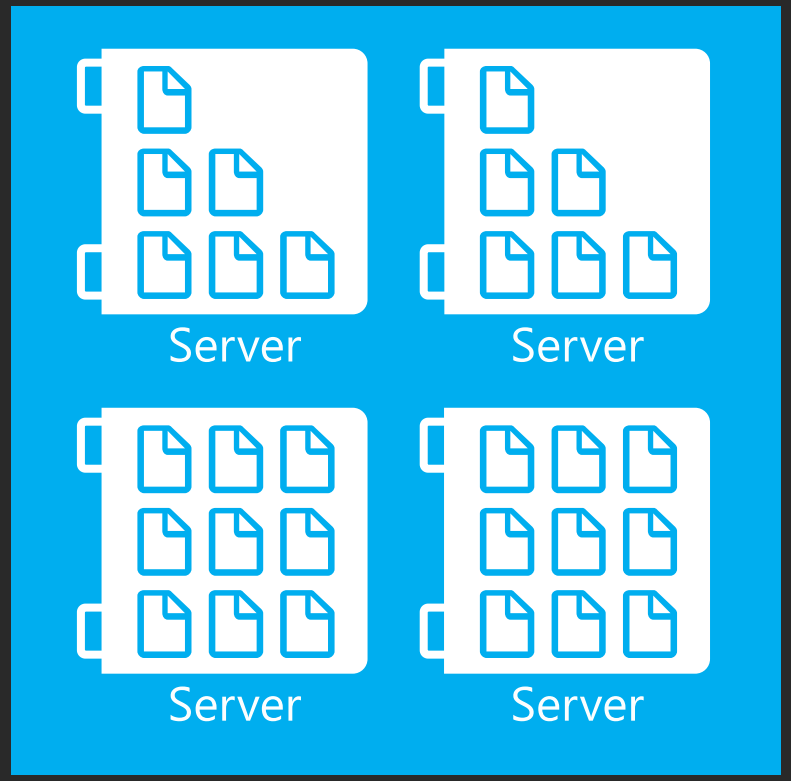
FIRST, STORE THE DATA

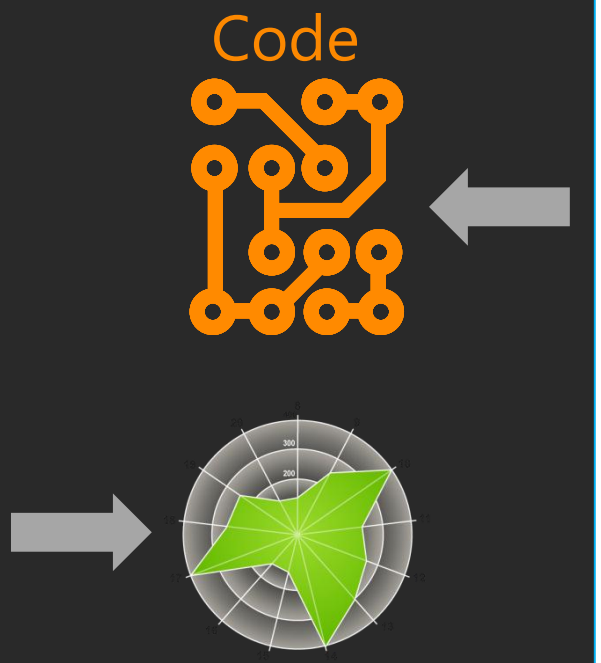


how does It work?

SECOND, MOVE CODE TO DATA

RUNTIME





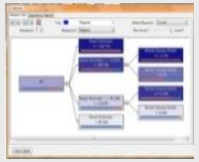

```
// Map Reduce function in JavaScript

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);
};
```

Microsoft big data solution

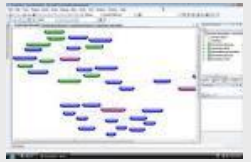
FAMILIAR END USER TOOLS

Power View

Excel with PowerPivot



Predictive Analytics



Embedded BI

BI PLATFORM

SQL Server Analysis Services

SQL Server Reporting Services

Hadoop On Windows Azure

Hadoop On Windows Server

Connectors

Microsoft Enterprise Data Warehouse

UNSTRUCTURED & STRUCTURED DATA

Sensors

Devices

Bots

Crawlers

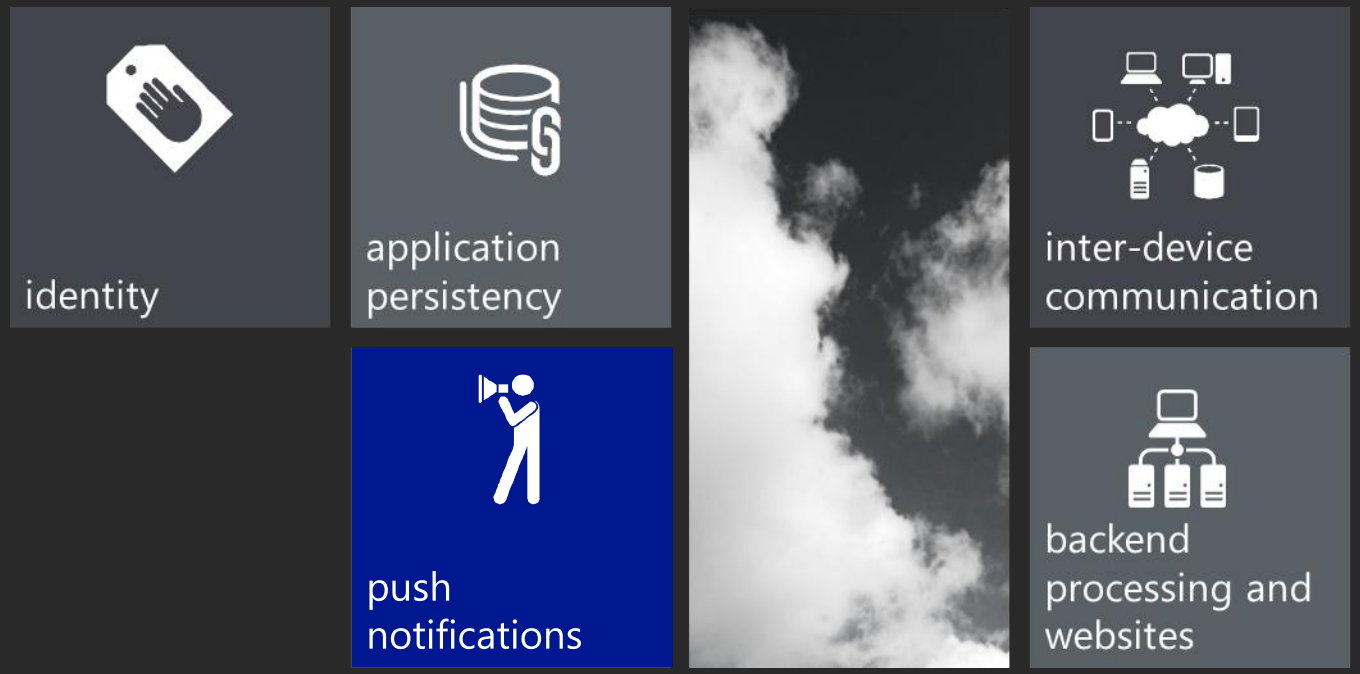
ERP

CRM

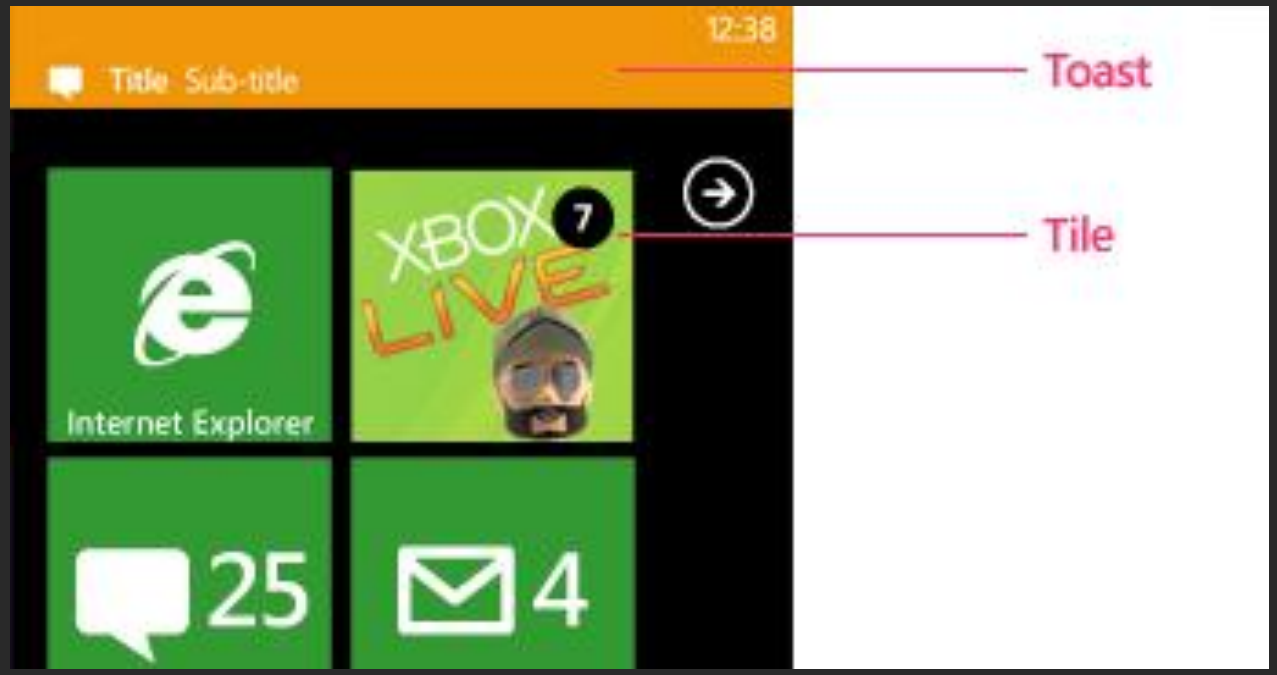
LOB

APPs

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

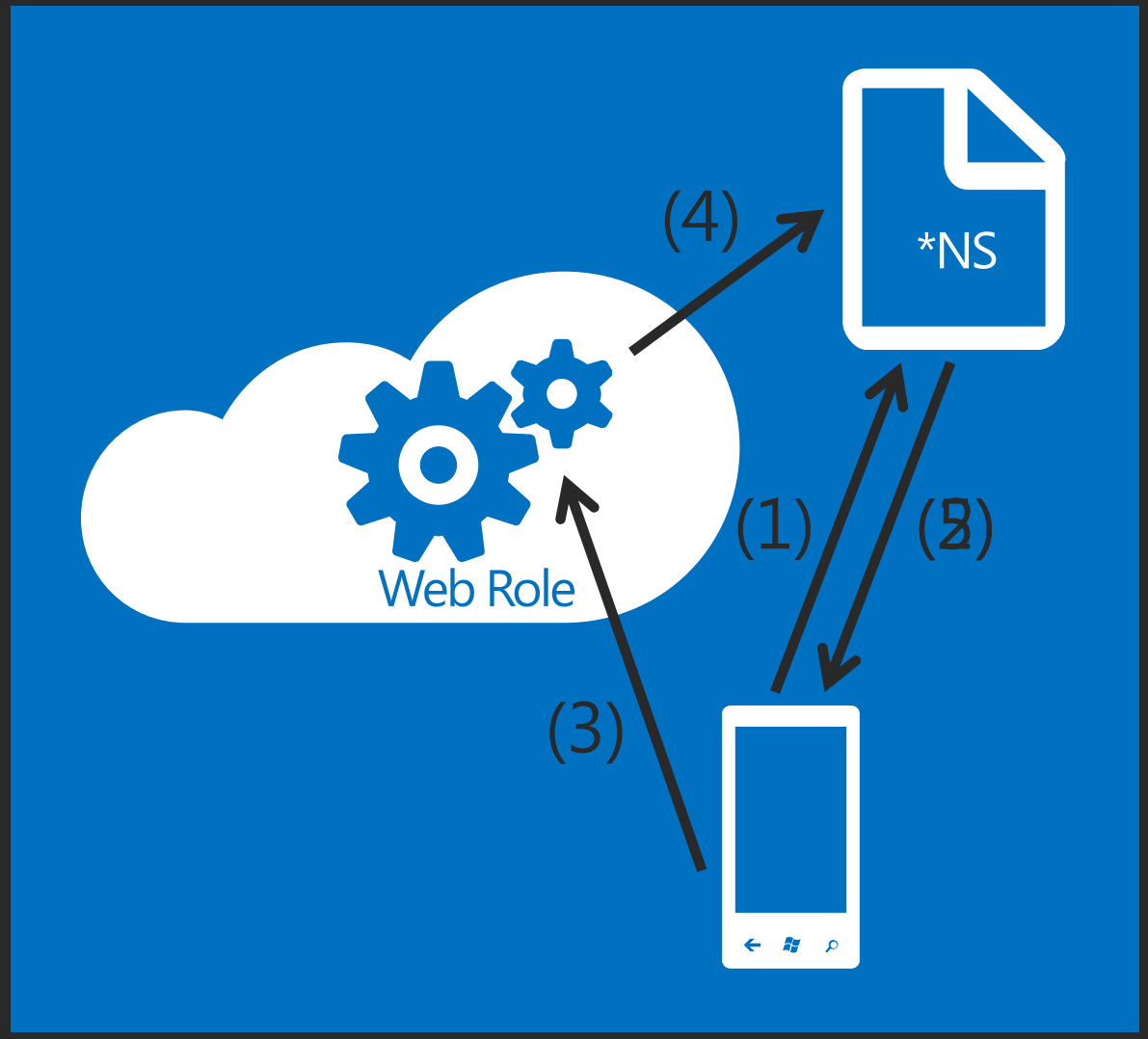
(1) device requests a channel
requesting app uses push client platform

(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

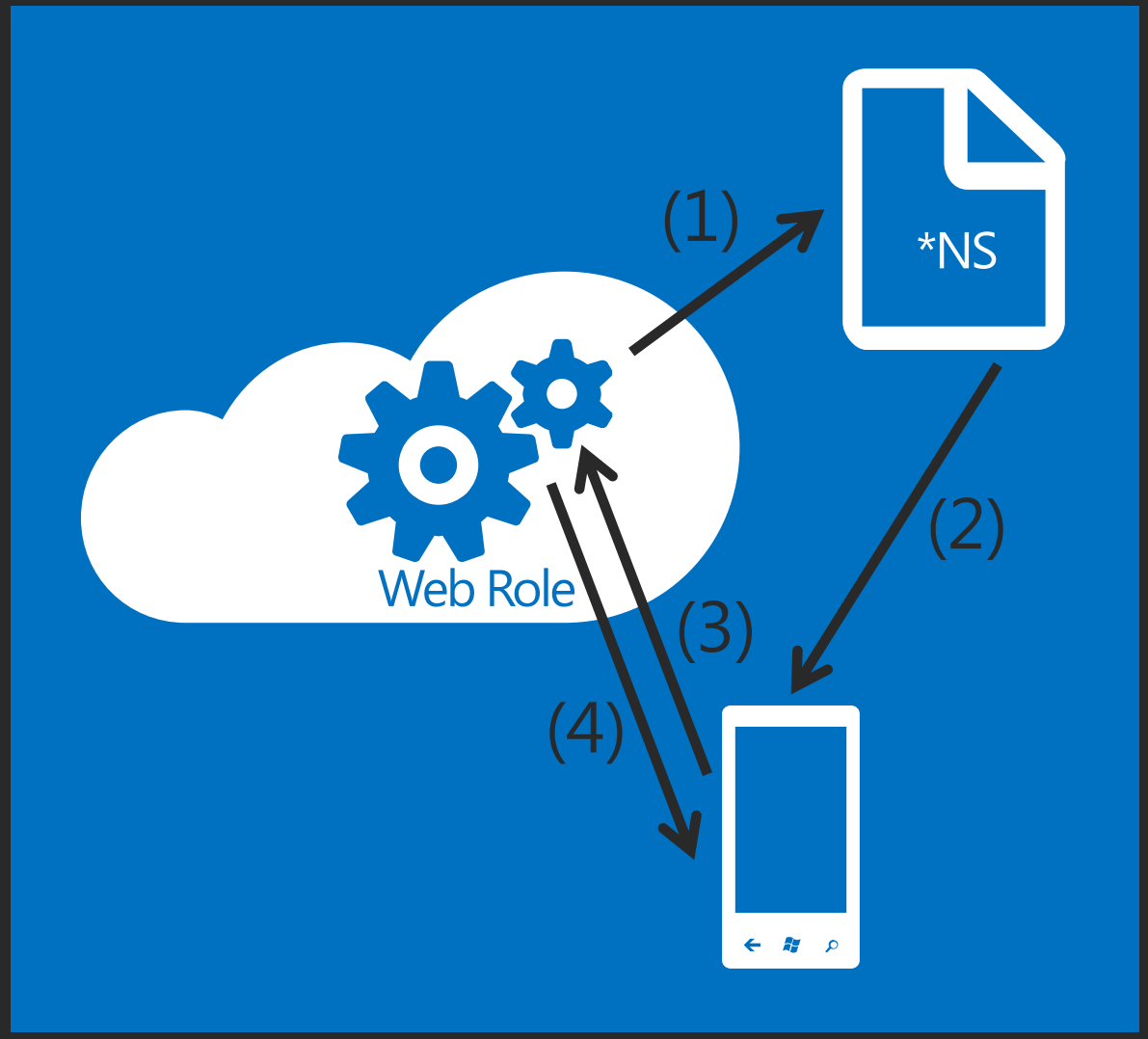
cloud-initiated push to tell the device to call to a service

(1) service sends notification

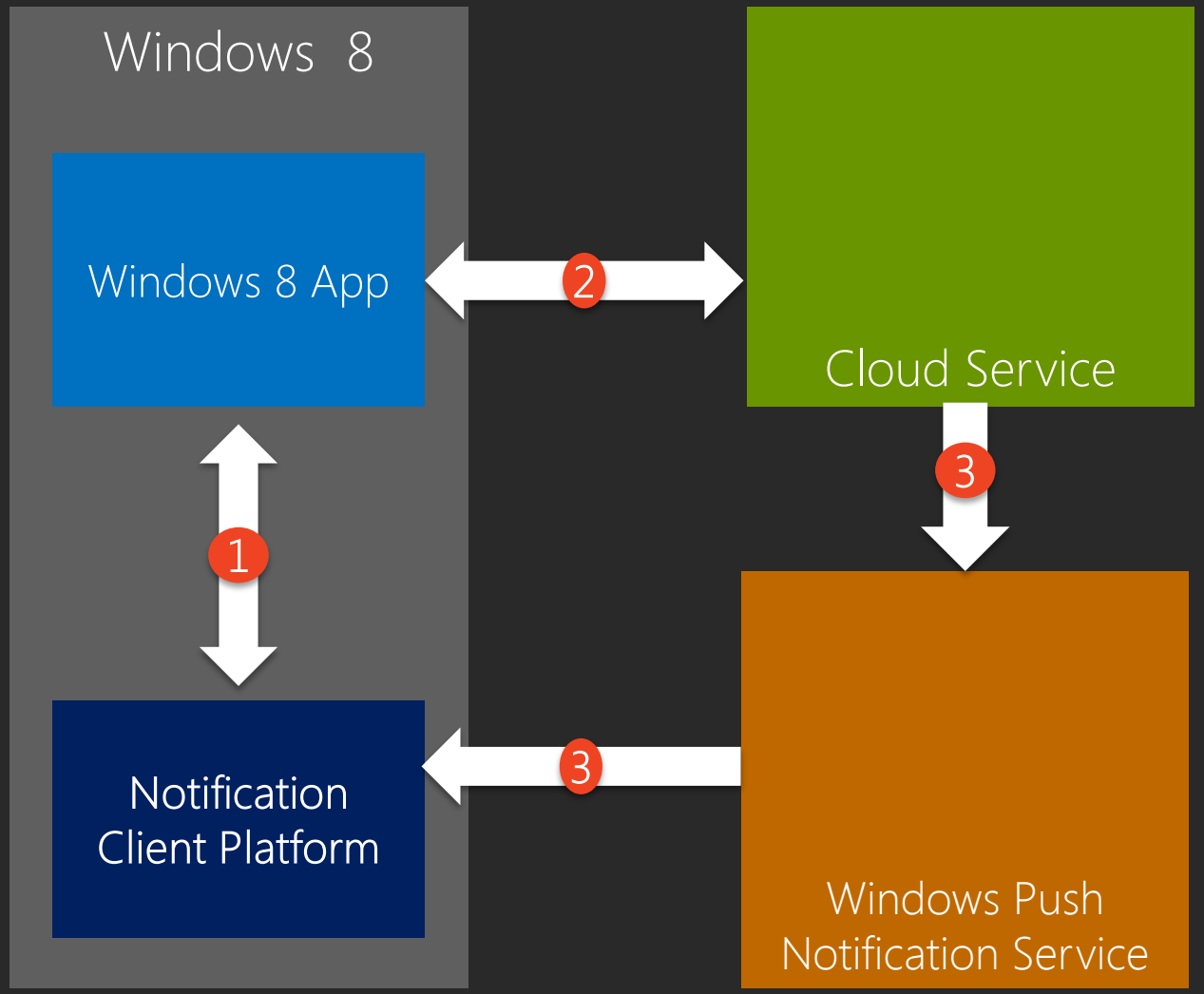
(2) notification services pushes to device

(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


demo:
Windows Azure
Mobile Services
part 2

different platforms – different services

Windows 8

Windows Push Notification Service (WNS)

Windows Phone

Microsoft Push Notification Service (MPNS)

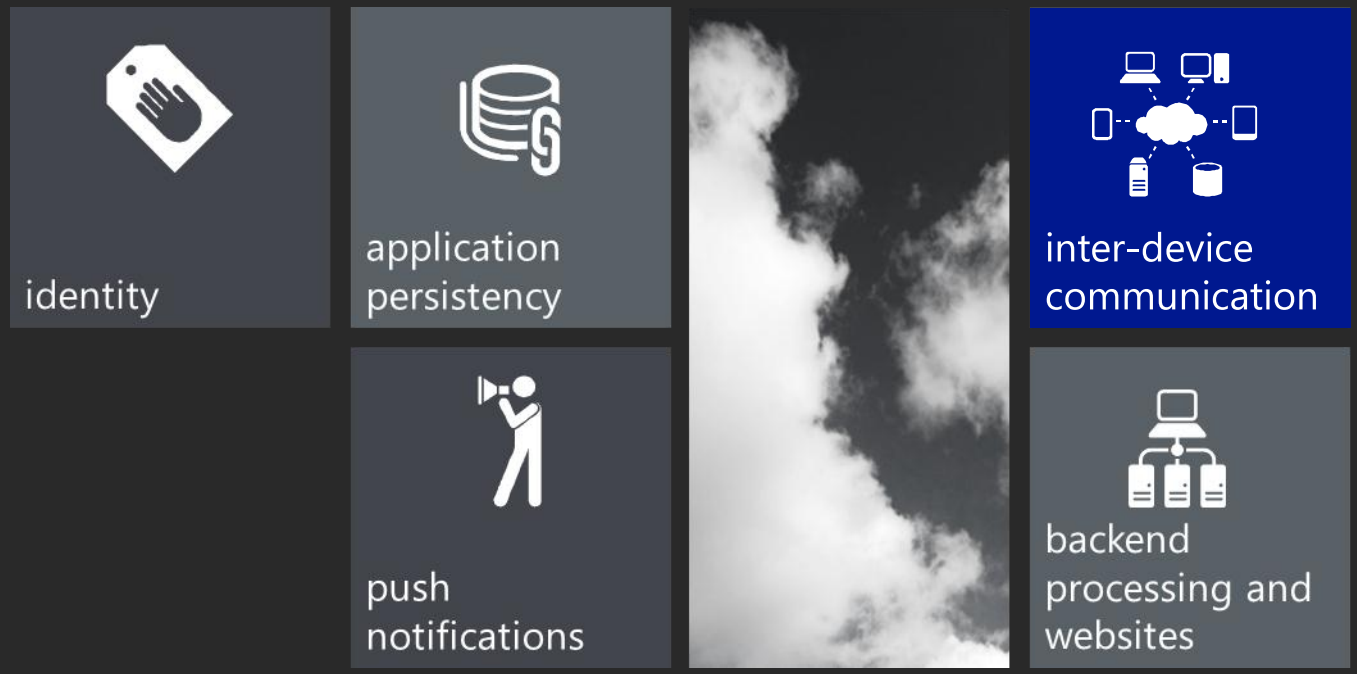
iOS

Apple Push Notification Service (APNS)

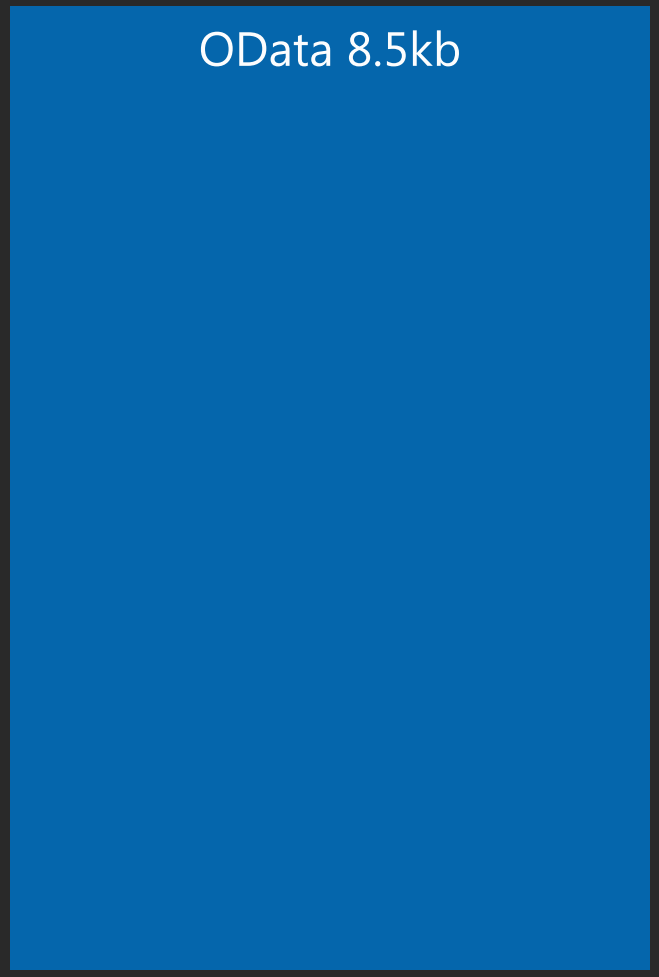
Android

Cloud To Device Messaging (C2DM)

core cloud capabilities



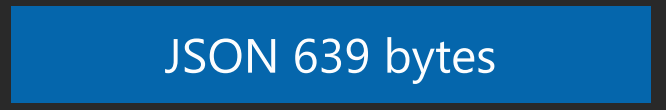
device-initiated communication options



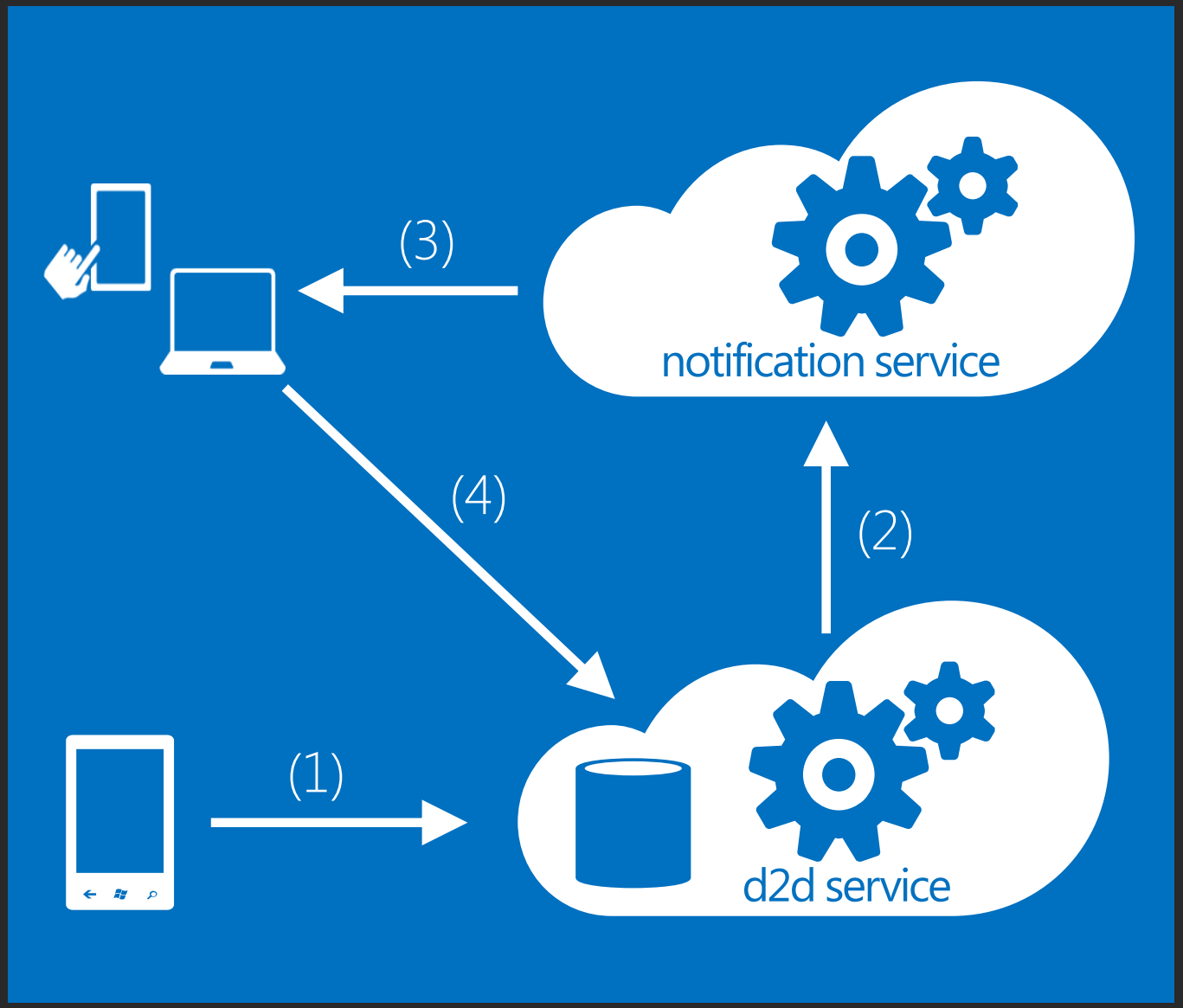
HTTP-based, request/response

Framework choices (WCF, OData, WebRequest, etc.)

Wire format choices (SOAP, JSON, POX, etc.)



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

conclusion

the cloud enables core App capabilities

Windows Azure is Microsoft's cloud platform

it provides 1st class PaaS & IaaS

and is open