

Platform as a Service (Paas)

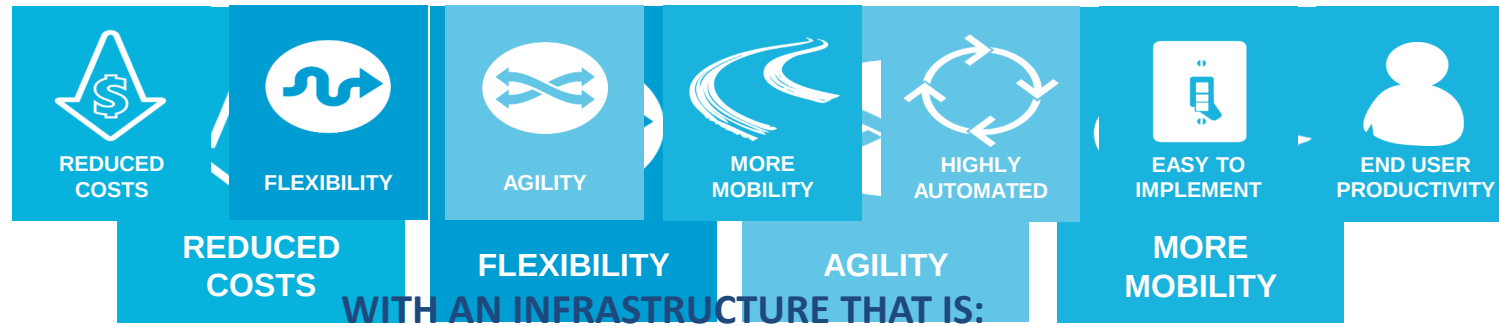
Cloud based networks

vitmma 02

Intro – clouds revisited

Business Benefits of the Cloud

YOU COULD ACHIEVE THESE BENEFITS:



Cloud Computing Terms



IaaS

Infrastructure-as-a-Service

host



PaaS

Platform-as-a-Service

build



SaaS

Software-as-a-Service

consume

Defining the Cloud

Deployment Models

Private Cloud

Public Cloud

Hybrid Cloud

Service Models

Infrastructure as a Service
(IaaS)

Platform as a Service
PaaS

Software as a Service
SaaS

Paas – what it is

Platform as a Service – the services

- app deployment
- scaling (horizontal, vertical, auto)
- load balancing
- health monitoring, auto recovery
- logging service
- external/internal services, marketplace

Advantages of Paas – the Platform assures

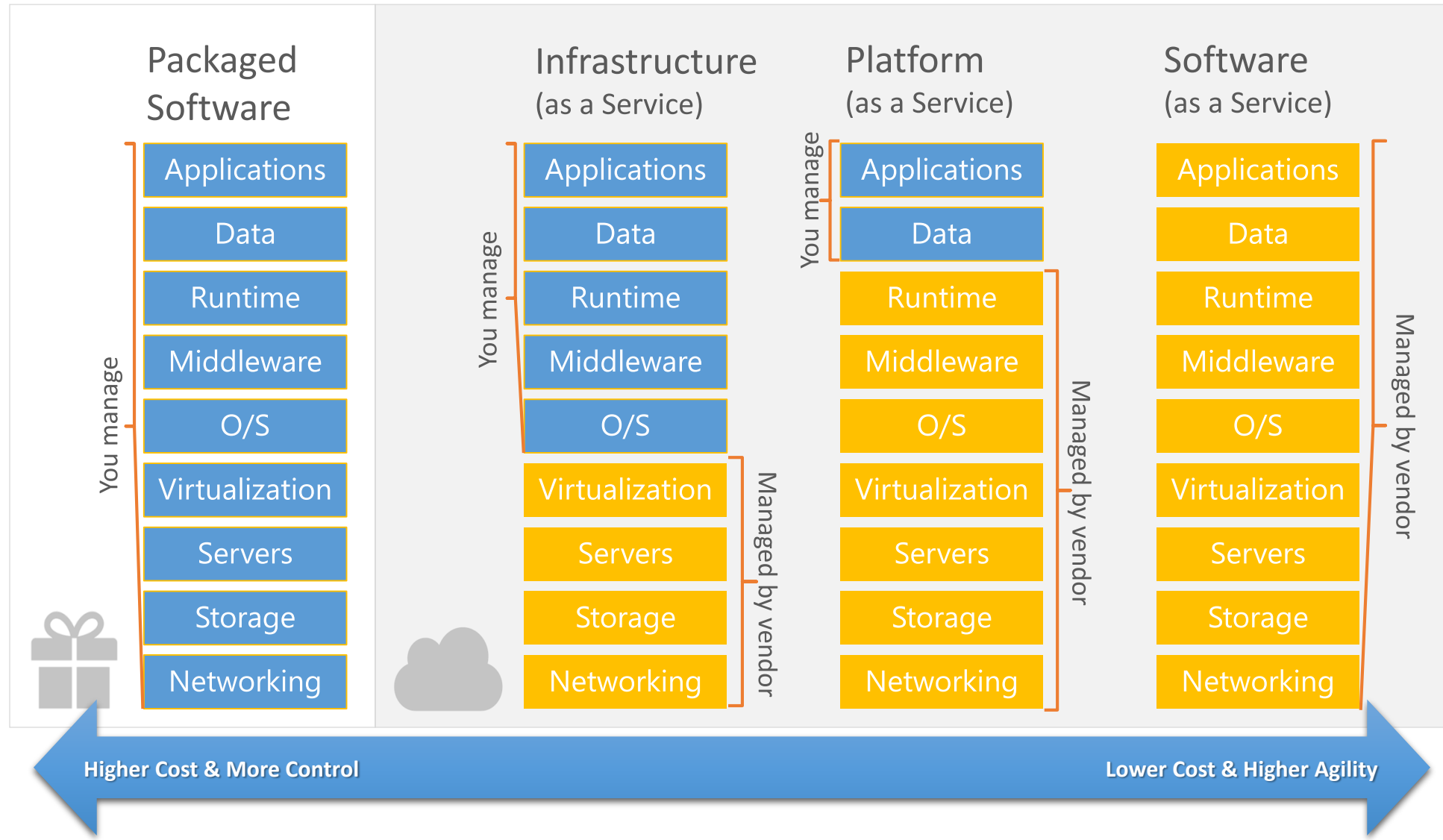
- deployment
- load balancing
- high availability
- log aggregation
- scaling
- Image mgmt –
 - Libraries, kernel versions
 - Security updates

Advantages of Paas – the Platform assures

- deployment
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Tenant's problem: just develop your own app

Compare the *aaS-es



Comparing the *aaS-es

- IaaS: The end user maintains control of the operating system and applications on the hardware.
- PaaS: end user has to development, testing, deployment, and ongoing maintenance of applications
- SaaS: end users pay on a per-use basis

Paas in a Nutshell

Comprehensive set of services that enable you to quickly build, deploy and manage applications across a global network of Microsoft-managed datacenters



Flexible



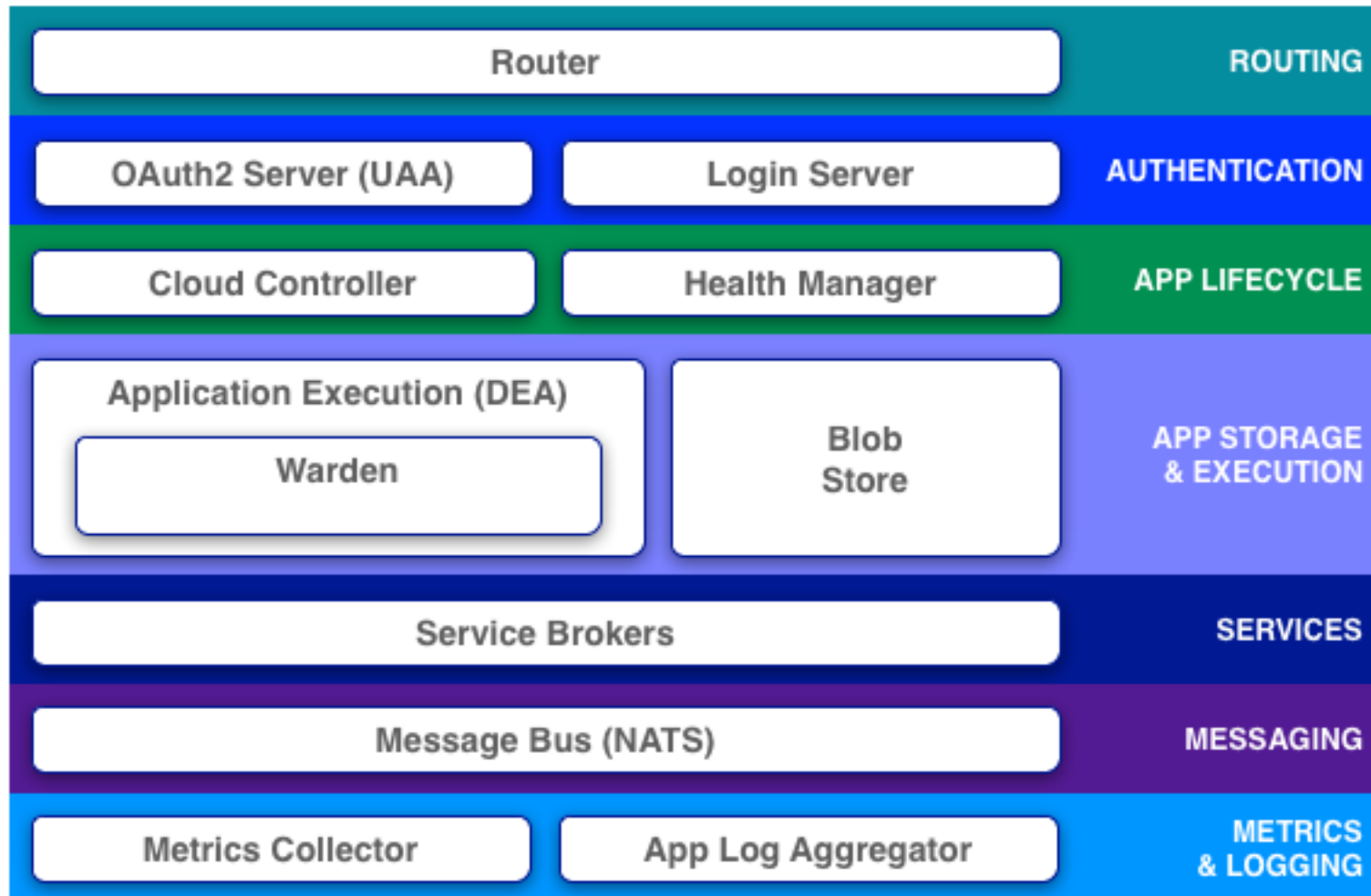
Open



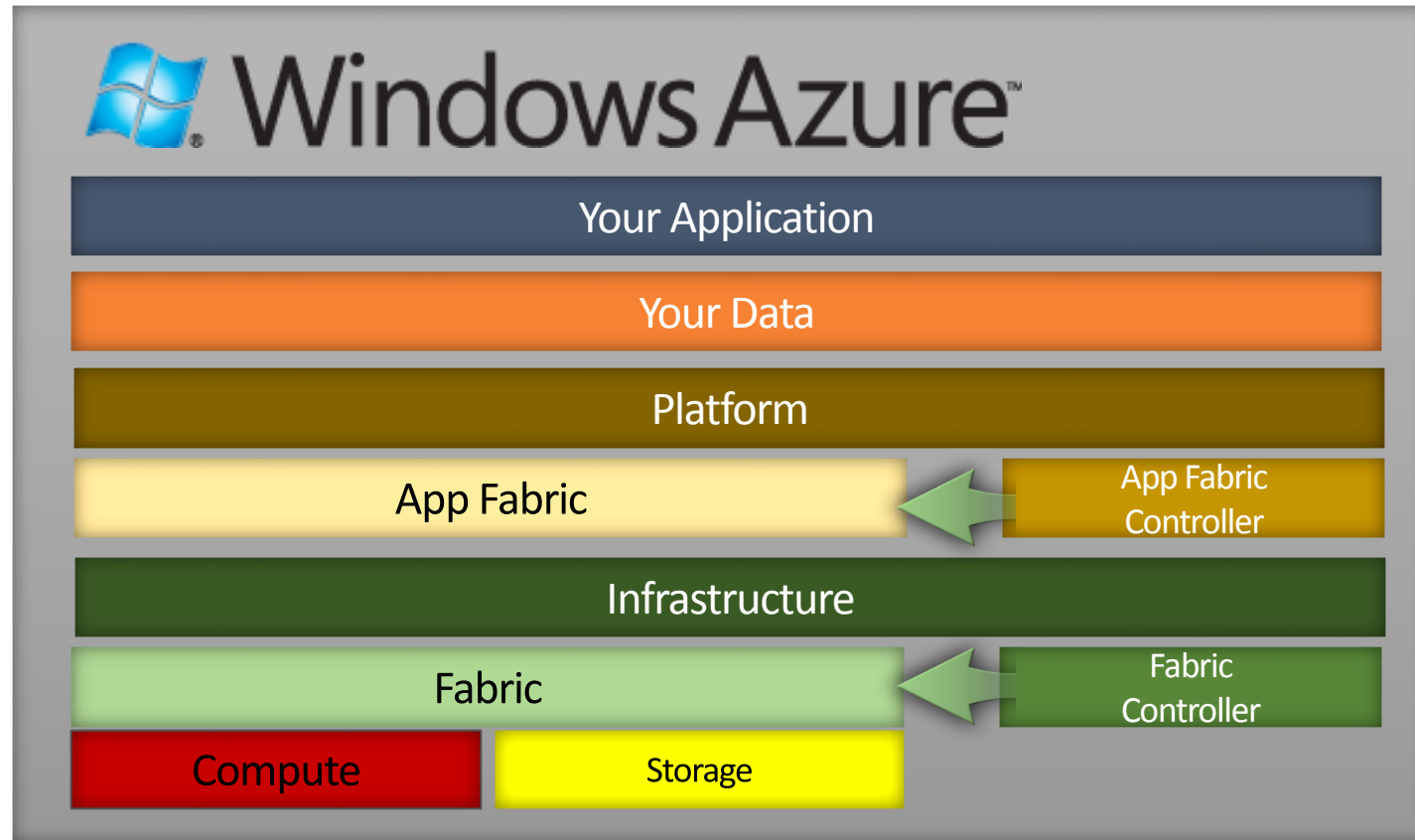
Solid

Paas Architecture

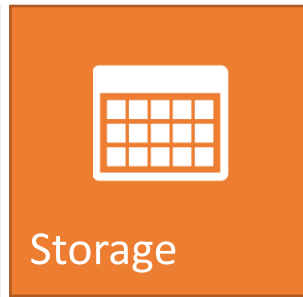
Cloud Foundry - Architecture



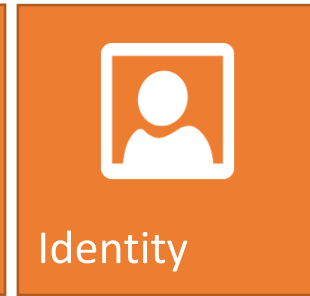
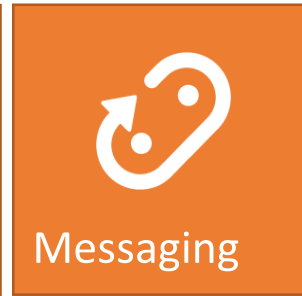
WinAzure - Architecture



Building Block Services



Application
Building Blocks



Use case: Win Azure

Three Main Components



Virtual
machines



Cloud
services



Web
sites

Virtual Machines



Virtual Machines

Windows Server and Linux

Flexible Workload Support

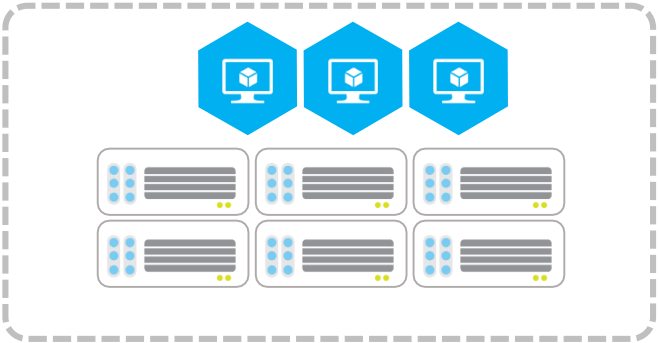
Virtual Private Networking

Virtual machine portability

Windows Azure



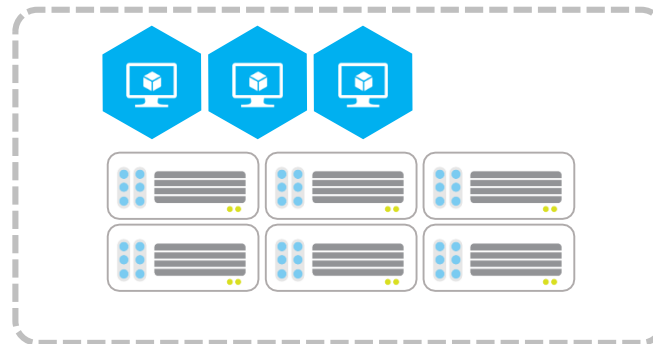
Your Data Center



Windows Azure



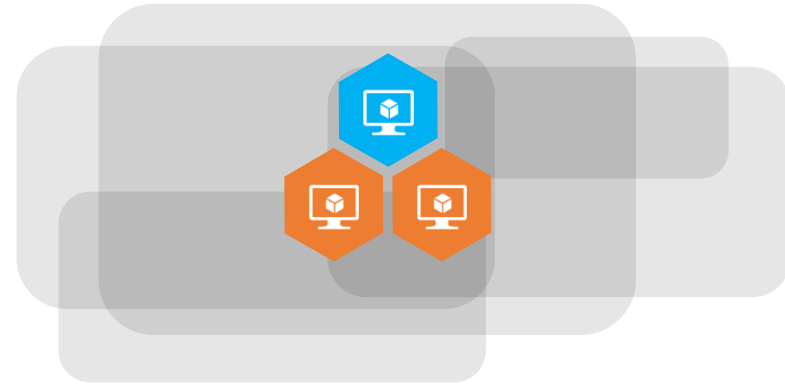
Your Data Center



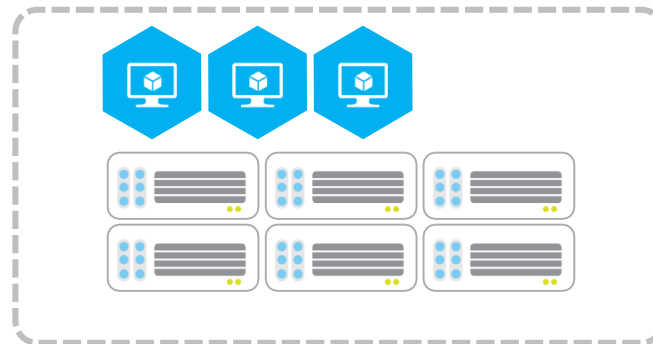
Windows Azure



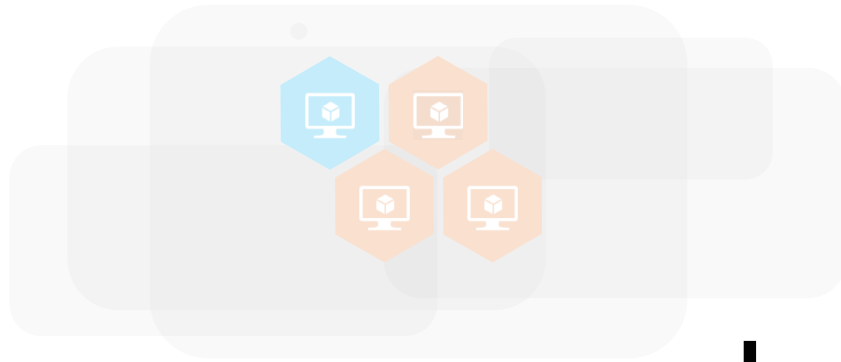
Other Service Providers



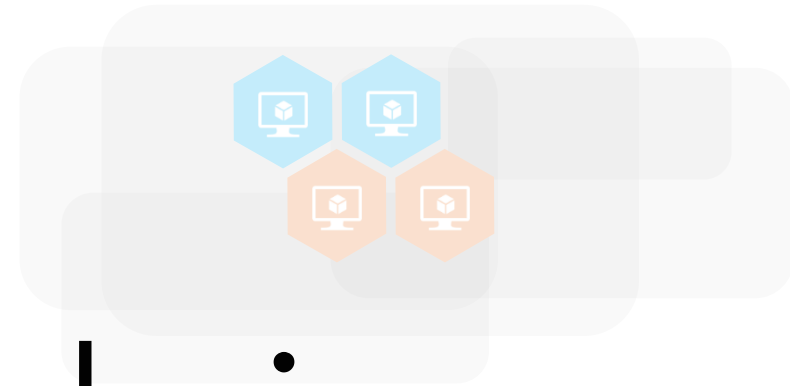
Your Data Center



Windows Azure



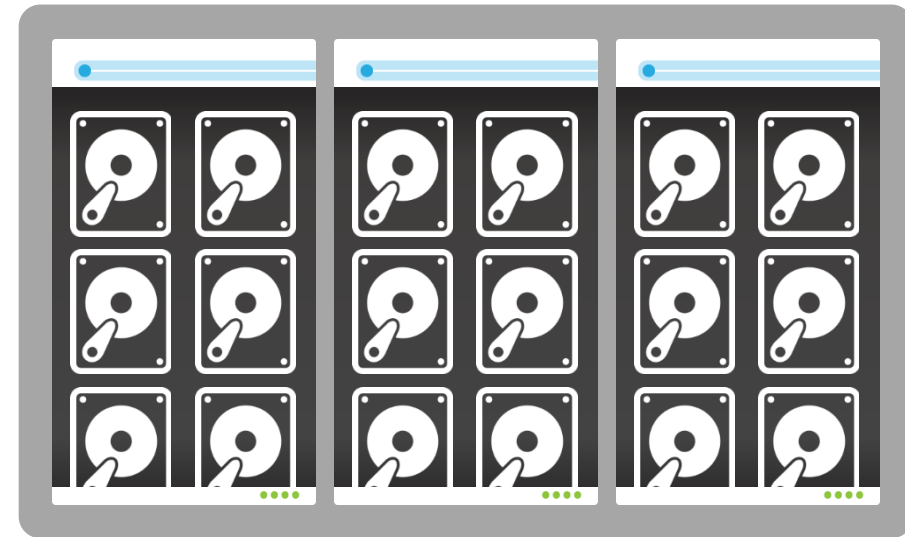
Other Service Providers



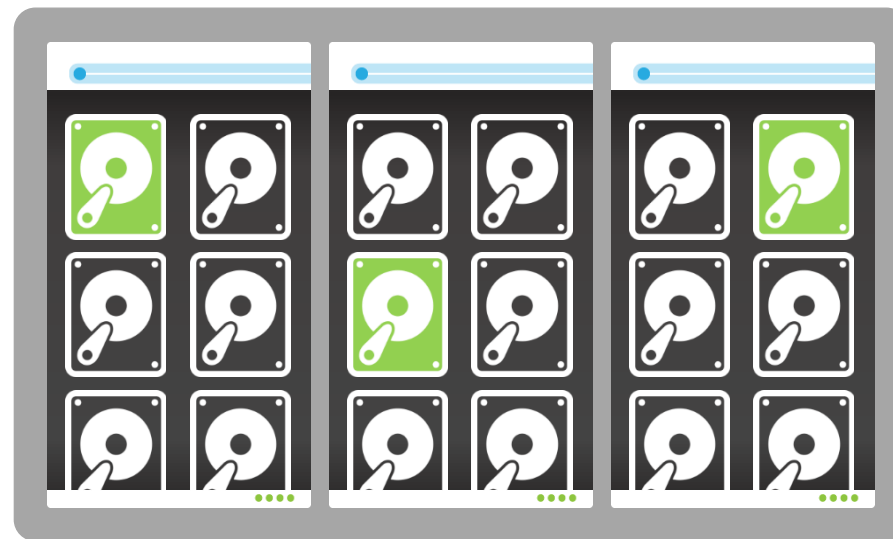
no lock-in

Your Data Center

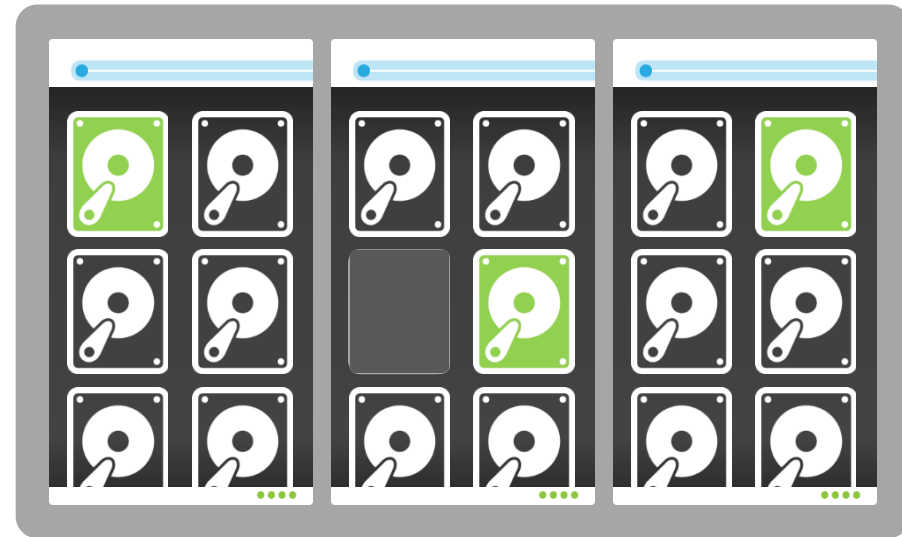
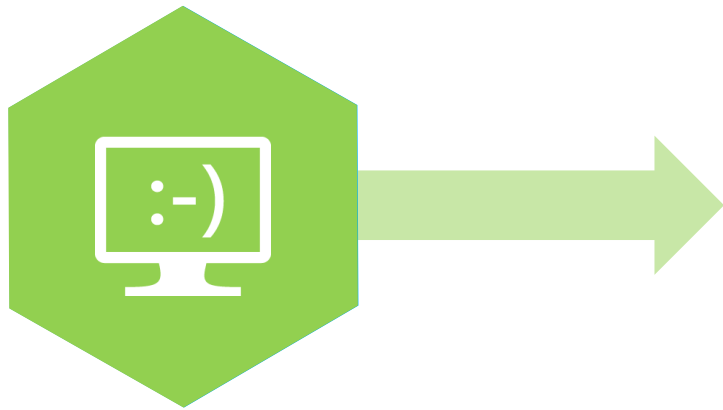




Windows Azure Storage



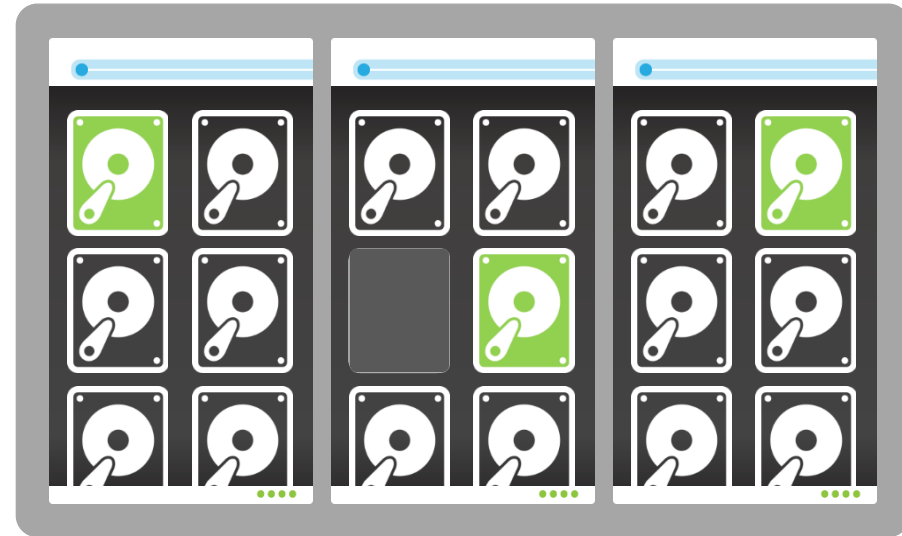
Windows Azure Storage



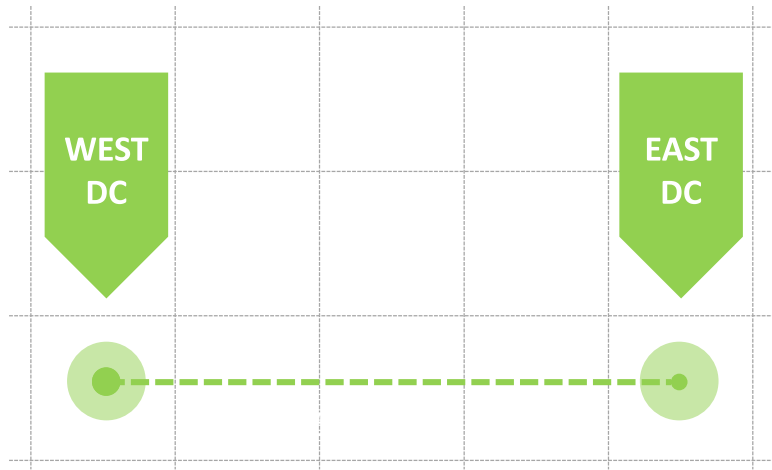
Windows Azure Storage

VM with persistent drive

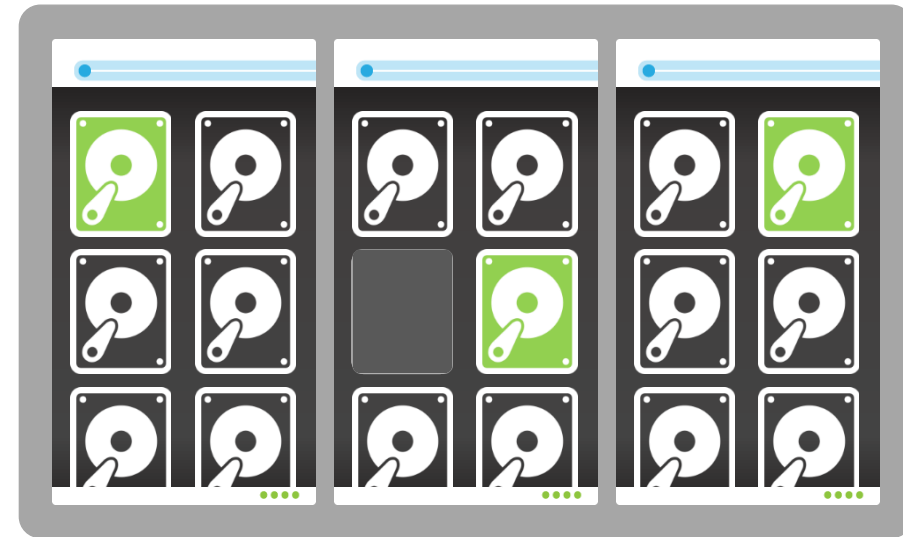
Reliable and
always on



Windows Azure Storage



Continuous storage
geo-replication



Windows Azure Storage

Web Sites

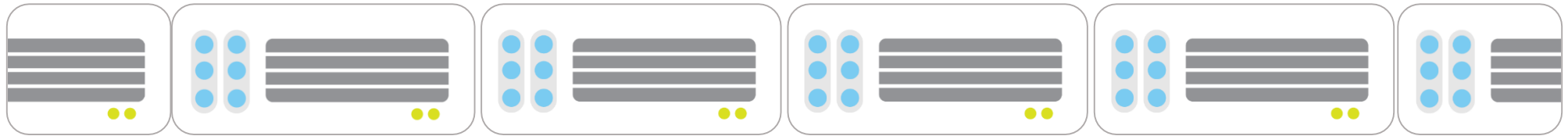
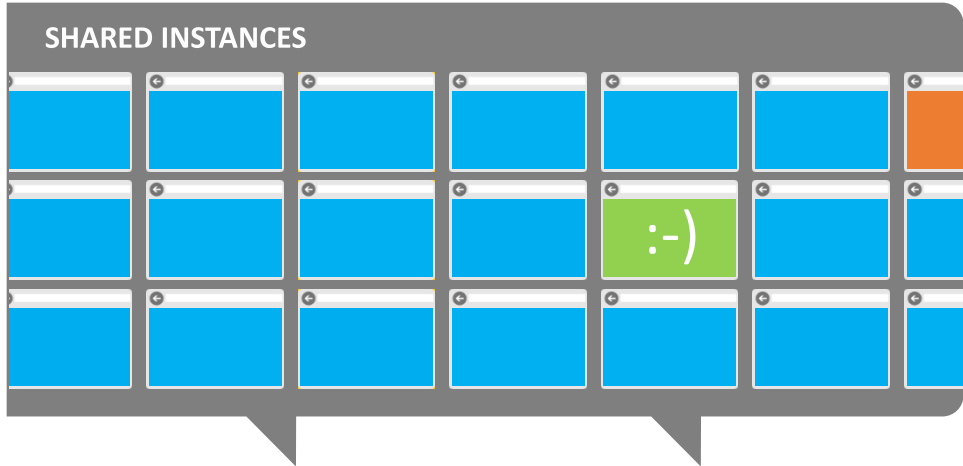


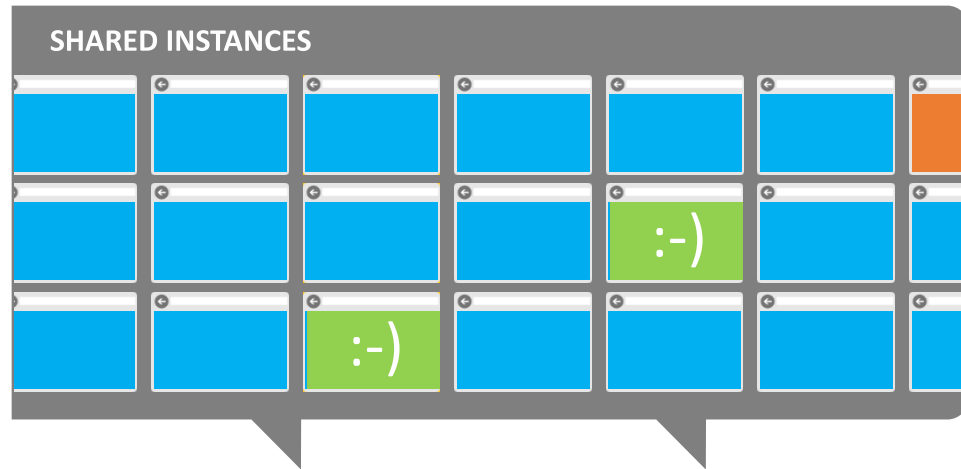
Web sites

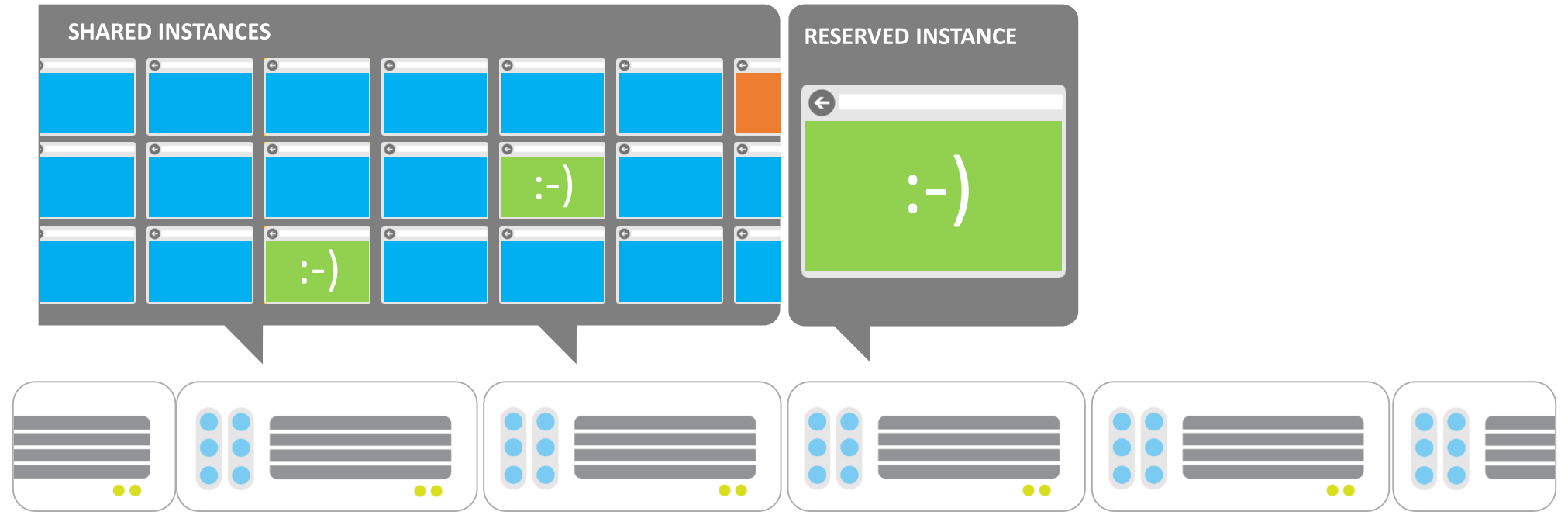
Build with ASP.NET, Node.js or PHP

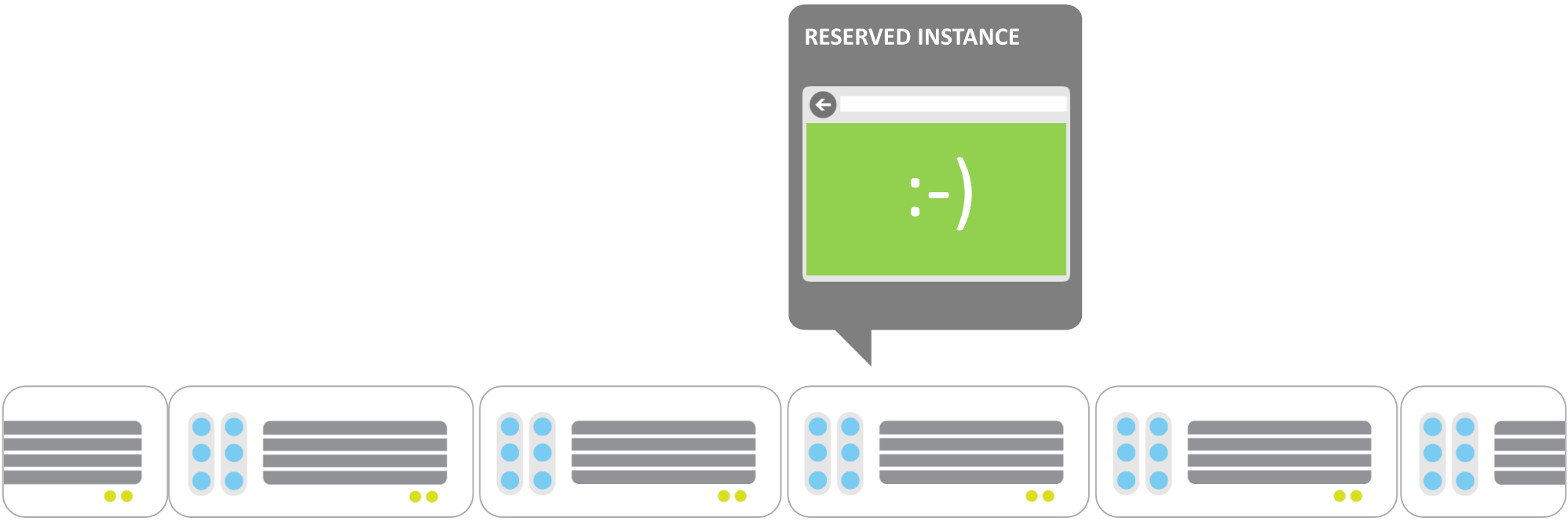
Deploy in seconds with FTP, Git or TFS

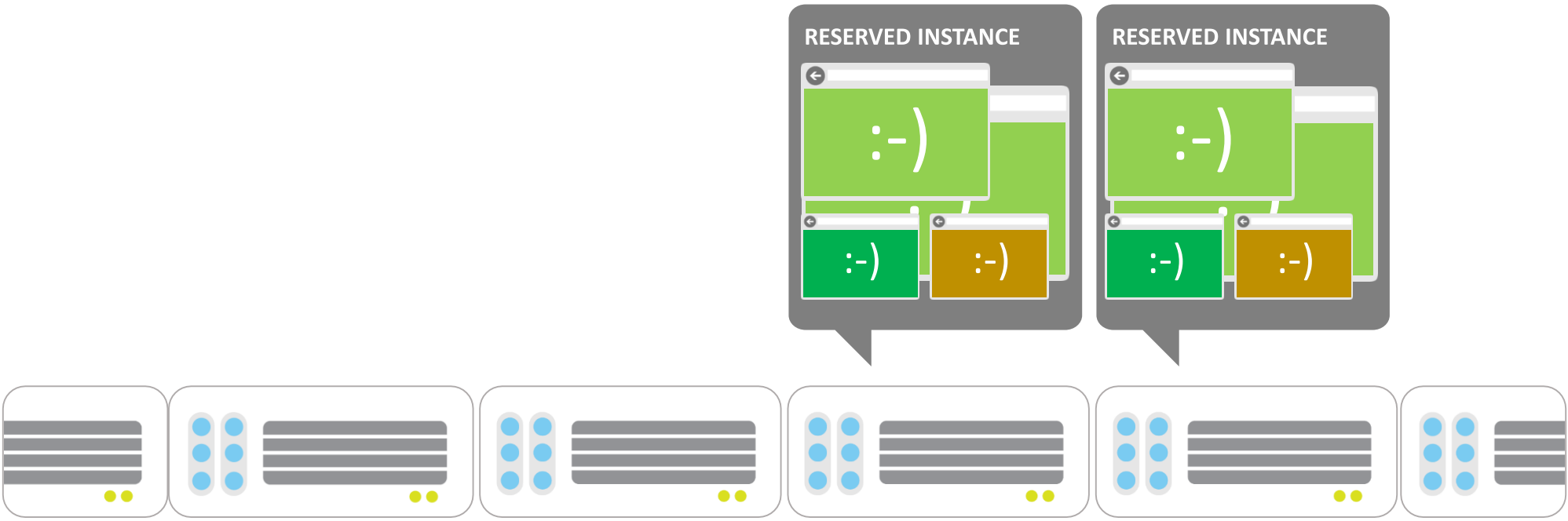
Start for free, scale up as your traffic grows











Cloud Services

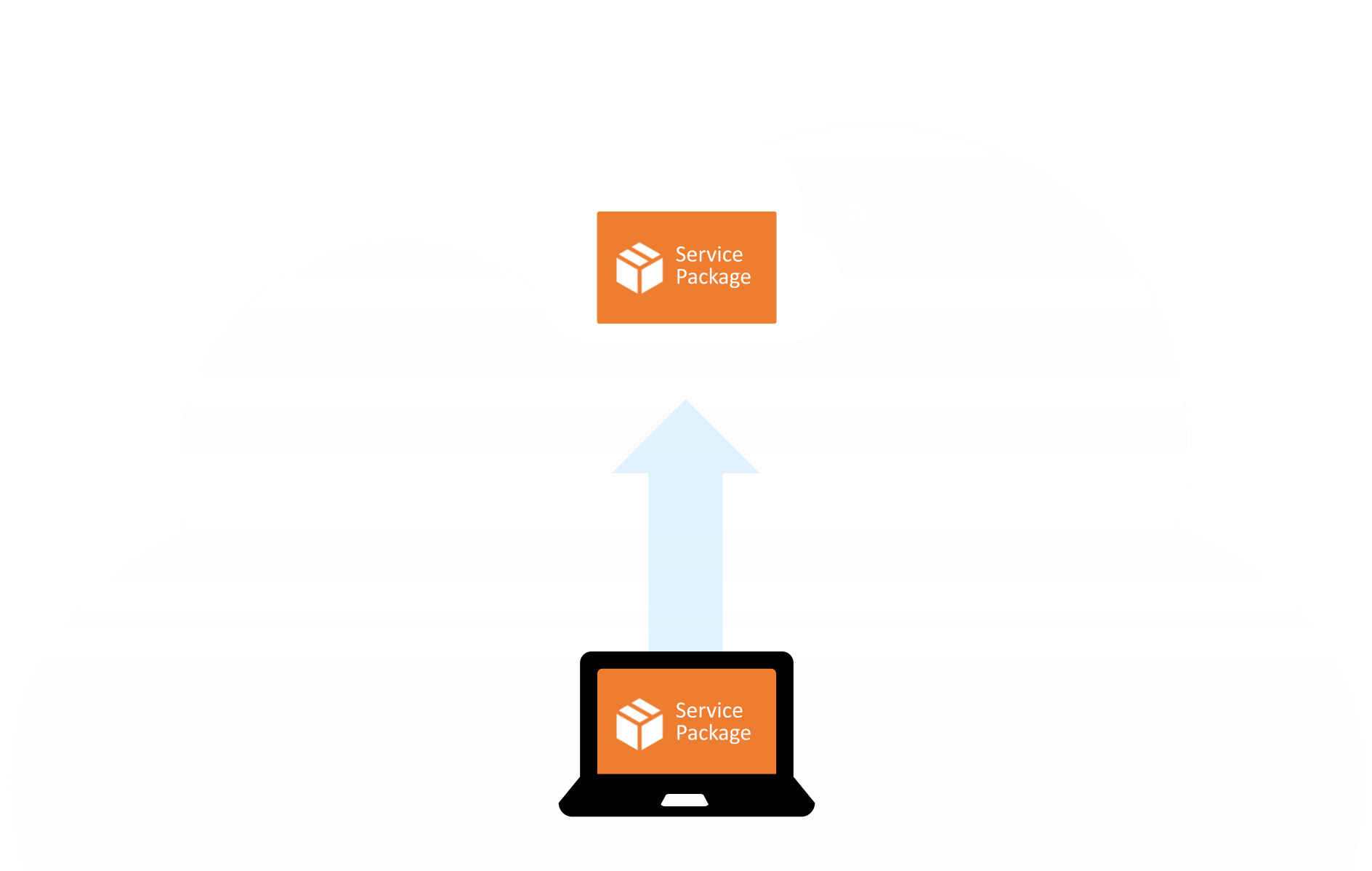


Cloud services

Build infinitely scalable apps and services

Support rich multi-tier architectures

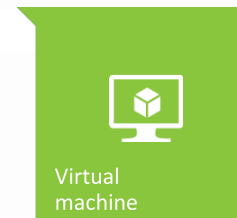
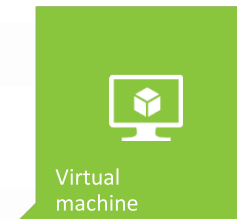
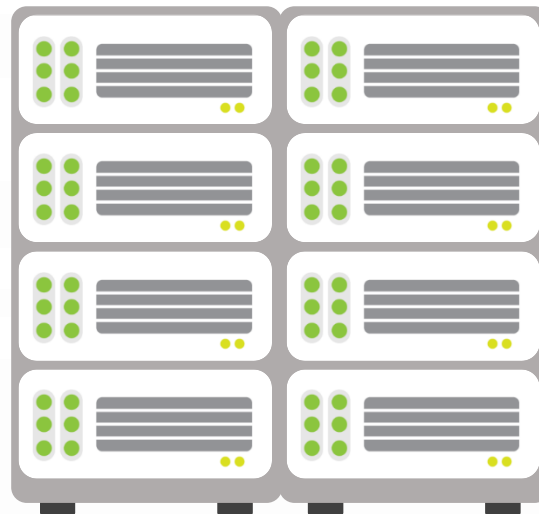
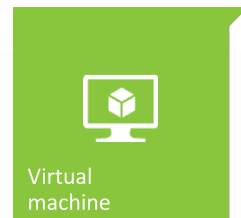
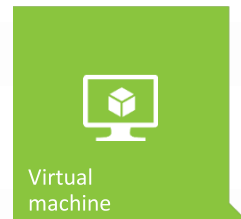
Automated application management



Provision Role Instances

Deploy App Code

Configure Network



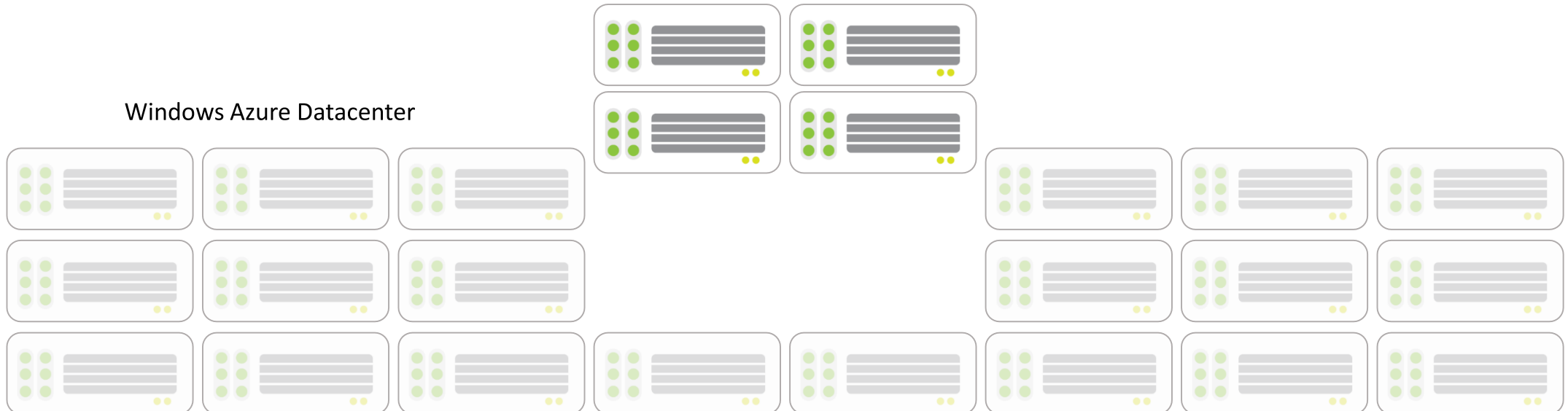
Provision Role Instances

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Windows Azure Datacenter



Provision Role Instances

Deploy App Code

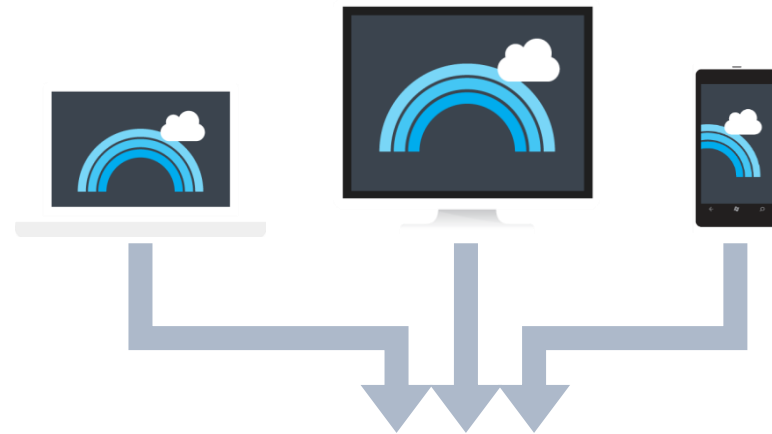
Configure Network



Windows Azure Datacenter



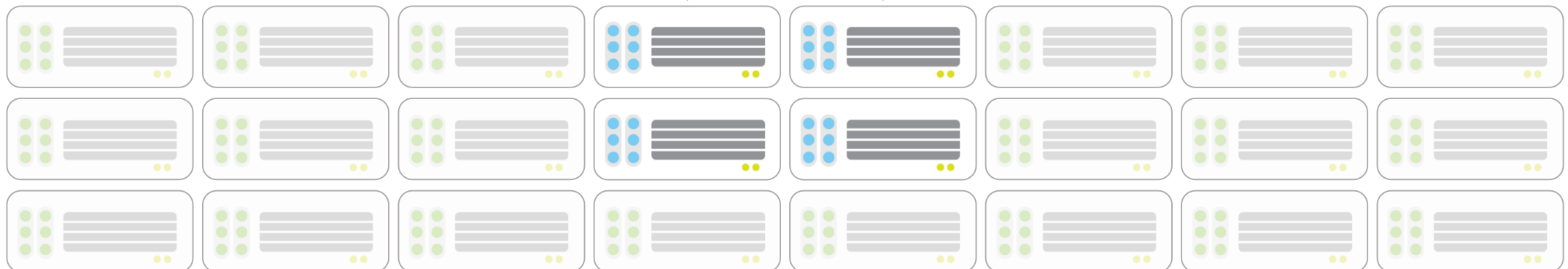
Provision Role Instances
Deploy App Code
Configure Network

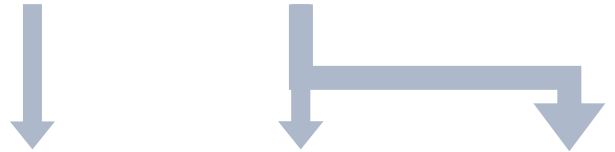


Network Load Balancer

← Network load-balancer configured for traffic

Windows Azure Datacenter





Windows Azure Datacenter



Telco Grade Paas

Problems with the PaaS

No telecom-ready PaaS

PaaS is coming from the IT (web) world

- Általában HTTP load balancer van csak,
 - egyéb protokollok (SIP, diameter, TCP session, stb.) jellemzően nem támogatottak.
- Belső állapotinformációk kiszervezése külső DB/cache
 - teljesítmény problémák
- Semmilyen QoS / válaszidő garancia nincs
- PaaS teljes mértékben elrejt a virtuális gépeket és hálózatokat
 - nem lehet közös VM-re tenni egymással sokat kommunikáló alkalmazásokat,
 - nem lehetséges hálózati optimalizációt (pl. Intel DPDK) kihasználni
- Nincs szabványos PaaS
 - a PaaS alkalmazásokat minden egyes operátor hálózatra fel kell(ene) készíteni

Requirements for a PaaS

- Actually SaaS, PaaS,...
- <http://12factor.net/>

- I. Codebase
- One codebase tracked in revision control, many deploys
- II. Dependencies
- Explicitly declare and isolate dependencies
- III. Config
- Store config in the environment
- IV. Backing Services
- Treat backing services as attached resources
- V. Build, release, run
- Strictly separate build and run stages
- VI. Processes
- Execute the app as one or more stateless processes

- [VII. Port binding](#)
- Export services via port binding
- [VIII. Concurrency](#)
- Scale out via the process model
- [IX. Disposability](#)
- Maximize robustness with fast startup and graceful shutdown
- [X. Dev/prod parity](#)
- Keep development, staging, and production as similar as possible
- [XI. Logs](#)
- Treat logs as event streams
- [XII. Admin processes](#)
- Run admin/management tasks as one-off processes

Microservices architecture

- <http://martinfowler.com/articles/microservices.html>

TelcoGrade Paas – as it is on the markeet today

- FeedHenry – Mbaas
- <http://www.feedhenry.com/mobile-application-platform/mbaas/>
 - (Twillio)
 - <https://www.twilio.com/customers>

Summary

- Instead of a summary...
- ... select your own PaaS of choice
- <http://www.paasify.it/vendors>