Microsoft

Microsoft Azure Service Fabric

Azure Service Fabric

Build, deploy, and operate applications, using any OS, at any scale, on any cloud

Build

Build new or transform existing applications

Deploy

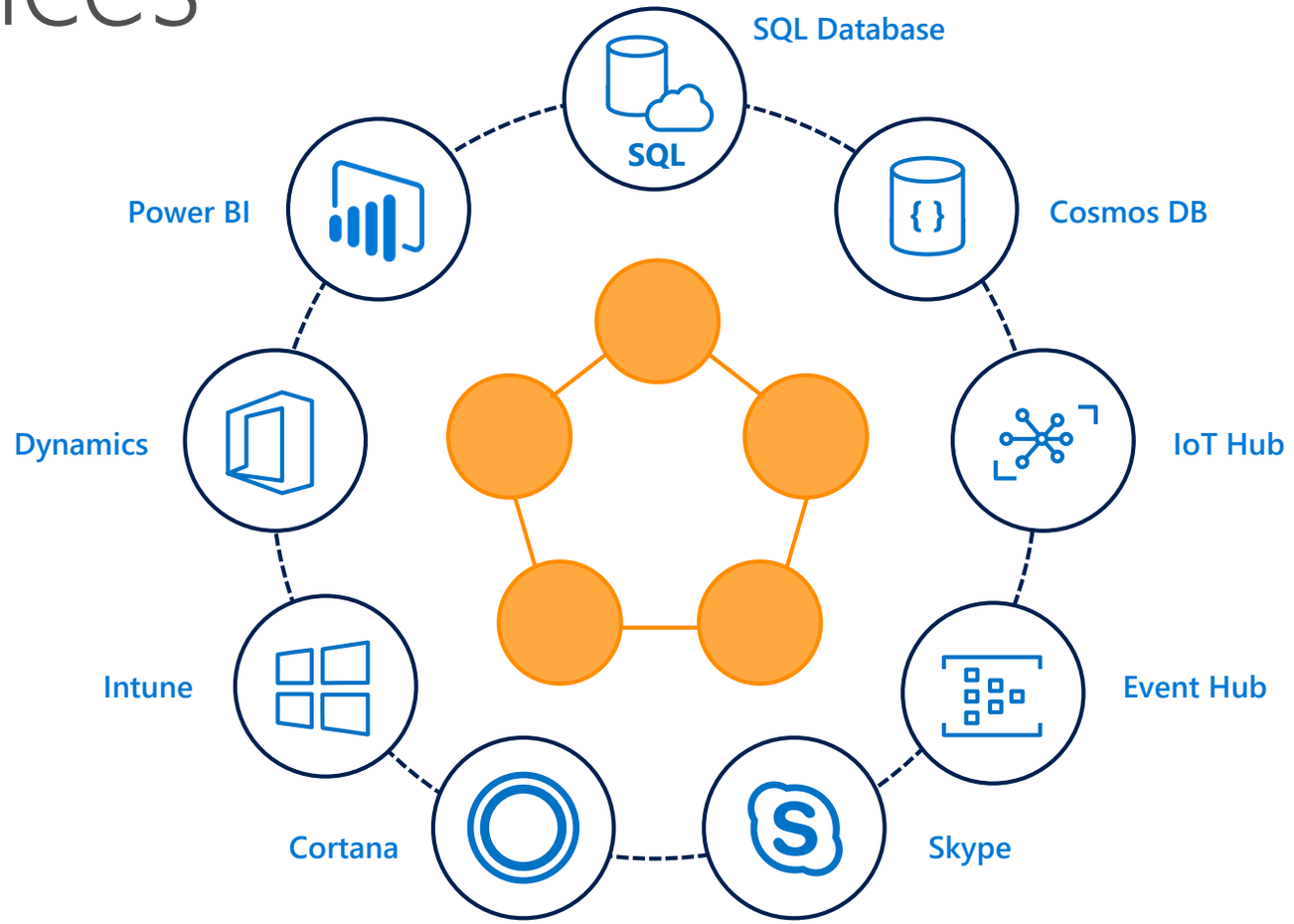
Deploy any code at any scale using tools you know

Operate

Run and secure services reliably at any scale

Proven platform powering core Azure and Microsoft services

- Microsoft has **deep expertise** in running global services such as Corana, Skype & Cosmos DB
- Service Fabric is the **foundational technology** powering these services & core Azure infra
- Sample scale of one of these services**: 60 billion events per day** with millions of databases
- About **30%** of Azure's cores run Service Fabric directly.



Trusted by customers of all sizes

Scenarios powered by Service Fabric

Empowering customers of all sizes to achieve more

Lift & shift to containers

Mission-critical business SaaS

IoT data processing

Low-latency data processing apps

New cloud-native apps

...one powerful Microservices platform for Windows Server and Linux containers

To monolith or to Microservice?

5 stages in a continuum…

1

Traditional app

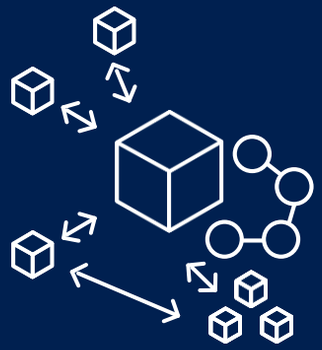
2

Monolith Hosted as guest executable or container

3

Existing Monolith + new microservices

4



Parts of existing monolith extracted

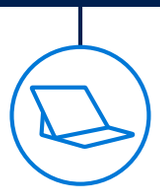
5

New or transformed microservices app

… we support any stage you choose

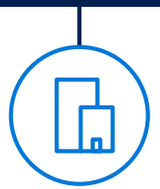
To build, deploy, and operate…

…containers or microservices on any OS on any cloud



Dev machine

Azure



On-premises infrastructure

Other clouds

Build: data-aware microservices

Programming Models

Dev & Ops Tooling

Orchestration

Lifecycle Management

Health & Monitoring

Always On Availability

Auto Scaling

Reliable Actors

Use familiar tools: Visual Studio + Team Services for .NET or Jenkins + Yeomen for Java

Reliable Services

Manage state reliability without a database, lowering latency

Guest Executables

Run existing code and orchestrate life cycle using service fabric

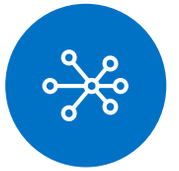
Containers

Orchestrate your Windows Server or Linux containers reliably at scale

.NET or Java …

Built-in ASP.NET core integration; work with VS and VSTS or Eclipse and Jenkins

Deploy: any code on any OS



Programming Models

Dev & Ops Tooling

Orchestration

Lifecycle Management

Health & Monitoring

Always On Availability

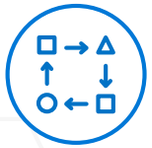
Auto Scaling

CI/CD

Maximize uptime and scalability with isolated compute threads running concurrently

Docker Compose

Orchestrate existing container applications natively



Automate

Deploy or remove applications using PowerShell, CLI, Visual Studio, and other APIs

Rolling upgrades

Upgrade non-disruptively and roll-back in case of failures, automate with PowerShell

Monitor and diagnose

Generate, aggregate, and analyze events with built-in tooling and integration with Azure services

Operate: on any cloud at any scale

Programming Models

Dev & Ops Tooling

Orchestration

Lifecycle Management

Health & Monitoring

Always On Availability

Auto Scaling

Use familiar tools

Such as Splunk, OMS, ELK, or AppInsights to gain deep insights or monitor application health

Use controlled chaos

Test graceful and ungraceful failure scenarios

Recover gracefully

Recover from node or service failure gracefully; replicate data automatically

Secure at scale

Secure node-to-node communication and user access using built-in capabilities

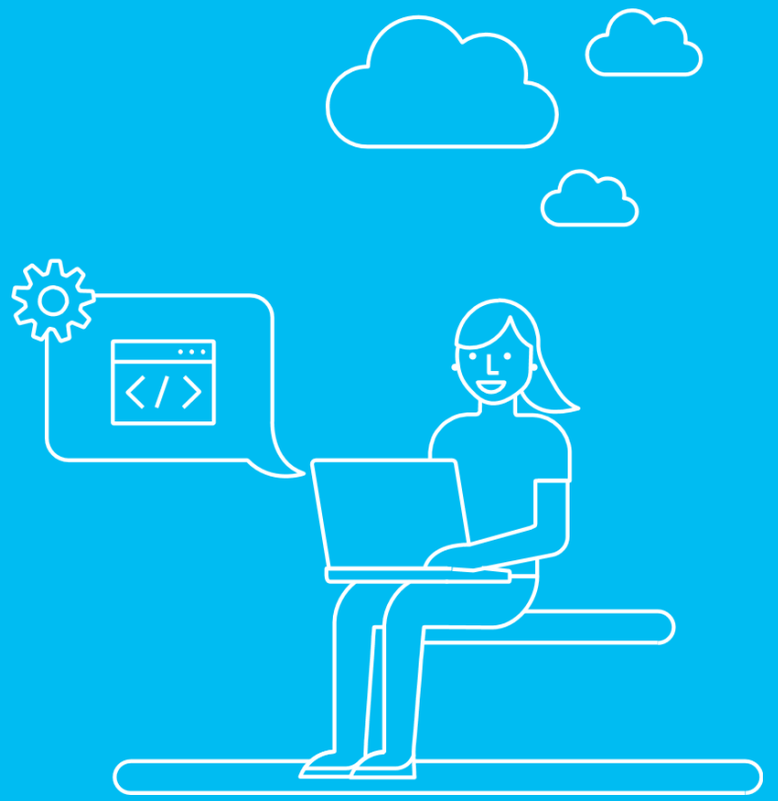
Scale programmatically

Use PowerShell, CLI, or APIs to scale programmatically achieving very high densities

Why they love Service Fabric

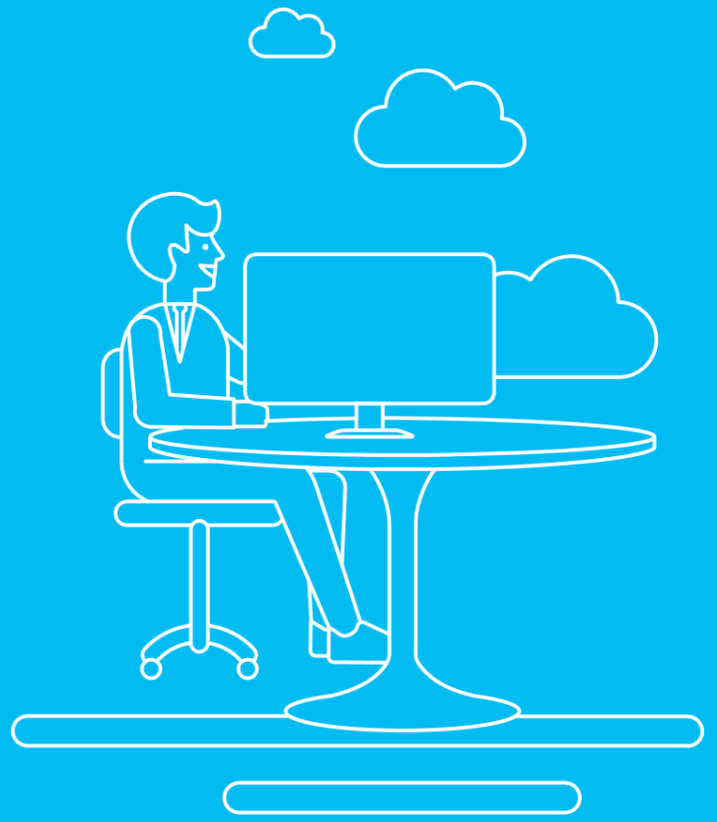
Awesome for developers

- Use .NET, Java or more
  - Stateless and Stateful services
  - ASP.NET core integration
- Open source programming models
  - Reliable services and actor programming model
- Visual studio integration
  - Use single node cluster for dev/test purposes
- Consistent experience across environments
  - Run the same environment on dev box as in production



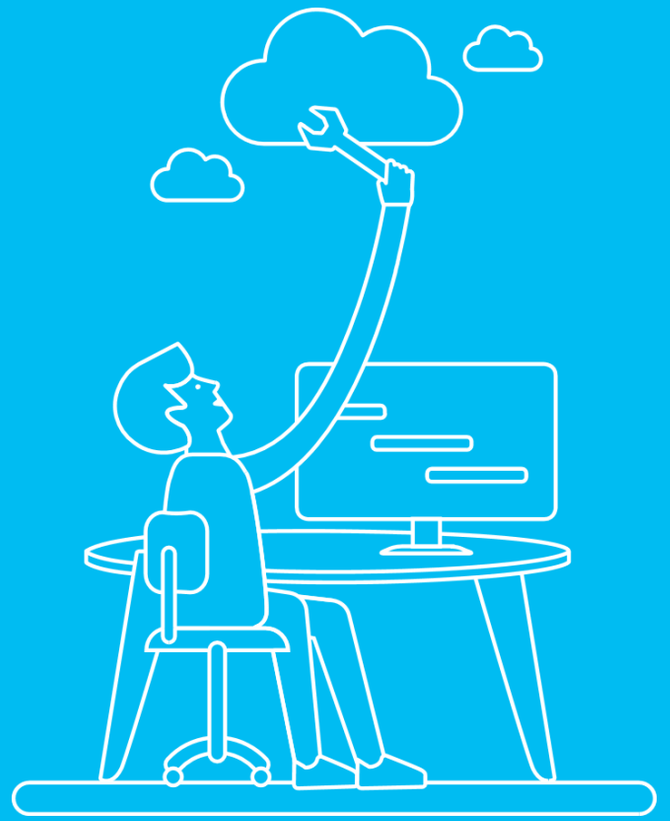
Awesome for dev-ops

- Automated deployment
  - Use PowerShell, Service Fabric CLI or APIs
- Rolling upgrades for reliability
  - Upgrade your services in an automated fashion
- Visual studio team services integration
  - For continuous integration and deployment
- Integration with Jenkins and more
  - Use tools familiar to you for deploying Java applications



Awesome for infrastructure management

- Cluster management
  - Secure your clusters and handle failures gracefully
  - Scale clusters programmatically or manually
  - Ease maintenance with integrated OS patching
- PowerShell, CLI, and GUI management
  - Be productive and choose tools that suit your needs
- Applications as an ARM resource
  - Manage clusters as well as deploy app using templates
- Health monitoring
  - Monitor using integrated or 3rd party tool of your choice
  - Query health using PowerShell or APIs programmatically



Service Fabric's Future

Recent Milestones…

In the last ~6 months:

- **GA** of support for Windows Containers
- **GA** of Service Fabric on Linux
- **GA** of support for integration with Azure API Management
- **GA** of support for Resource Governance
- **GA** of support for DNS addressing within the cluster
- **Preview** of support for .NET Core (Really .NET Standard 2)
- **Preview** of full support for Java
- **Many** performance, stability, and usability improvements

So what's next?

Containers

- API models inside
- Volume drivers
- Logs & Monitoring

Networking

- Per-App network
- Stable IPs

Management

- Resource Governance
- Debugging Improvements

Simplification

- New APIs
- Serverless/PaaS

Resources

Try it now: in under 5 minutes!

Create a new .NET Service Fabric application in Azure

- https://docs.microsoft.com/en-us/azure/service-fabric/service-fabric-quickstart-dotnet

Deploy a Service Fabric Windows container application on Azure

- https://docs.microsoft.com/en-us/azure/service-fabric/service-fabric-quickstart-containers

Deploy a Linux container application on Azure

- https://docs.microsoft.com/en-us/azure/service-fabric/service-fabric-quickstart-containers-linux

More resources

Service Fabric developer SDK

- http://aka.ms/ServiceFabricSDK

Service Fabric course and lab

- https://mva.microsoft.com/en-US/training-courses/building-microservices-applications-on-azure-service-fabric-16747

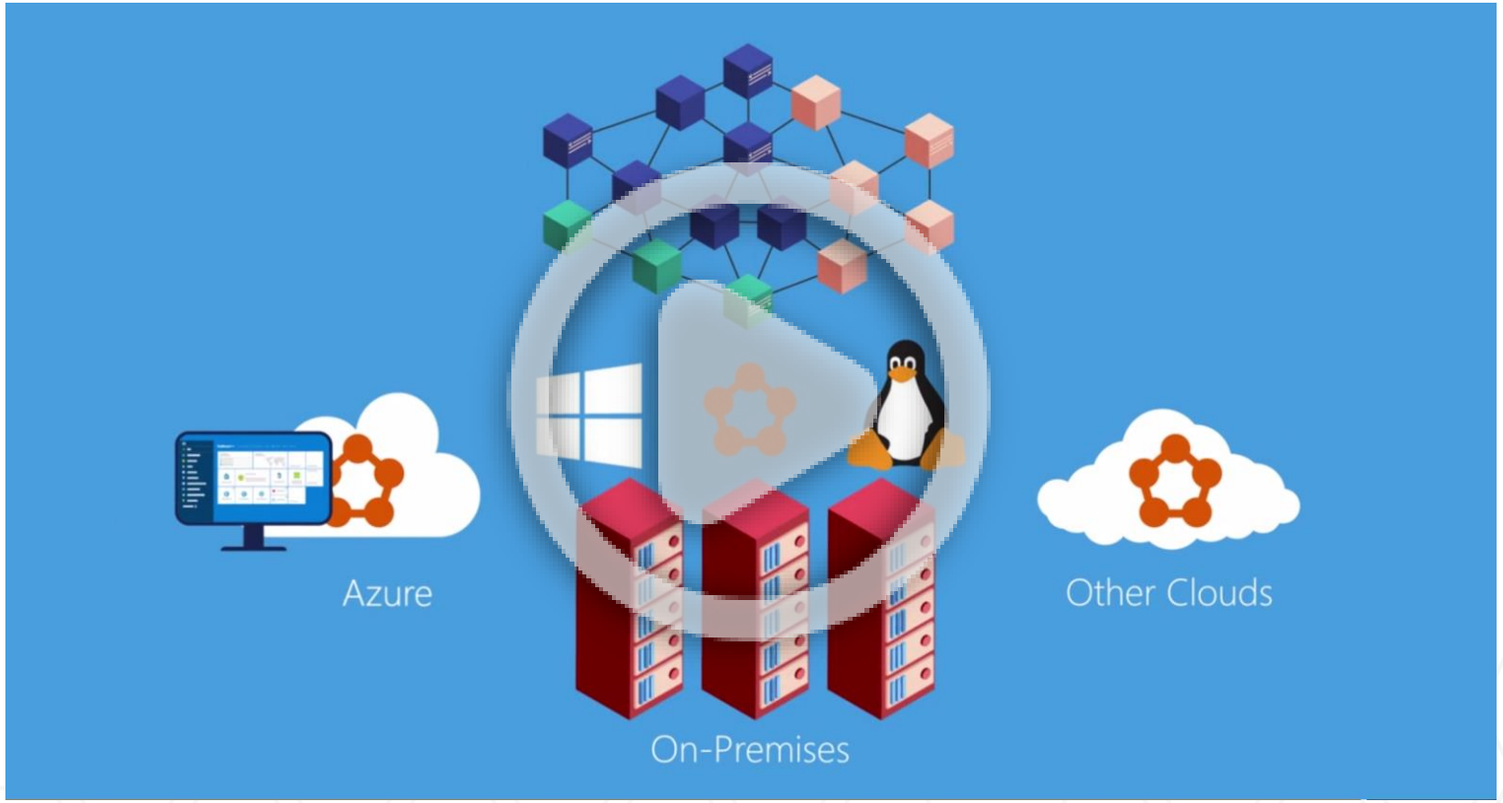
Learn from samples, free clusters, and labs

- http://aka.ms/ServiceFabricSamples
- http://aka.ms/tryservicefabric
- https://blogs.msdn.microsoft.com/azureservicefabric/2016/07/06/introduction-to-service-fabric-lab-part-1/

Questions? Comments? Issues?

- https://stackoverflow.com/questions/tagged/azure-service-fabric
- http://aka.ms/ServiceFabricForum
- https://github.com/azure/service-fabric-issues
- http://aka.ms/ServiceFabricSlack (request invite here)
- Monthly Q&A – Announcements on the Team Blog here

Service Fabric in under 4 minutes (video)



Thank you!