BizTalk Summit 2015 – London

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BizTalk 360



Charles Young

Solidsoft Reply, Principal Consultant

Microservices and the Cloud-Based Future of Integration















Charles Young

Principal Consultant Solidsoft Reply

www.solidsoftreply.com

geekswithblogs.net/cyoung



Specialist Microsoft development consultancy

1993 Microsoft certified application developers

1999 Microsoft managed partner

2000 Microsoft BizTalk integration specialists

2002 Microsoft global advisory council

2010 Windows Azure "cloud first" solutions

2013 Joined Reply

Today

UK "SME" £10M revenue

Core team of 60 specialists

100% Microsoft focus

ISO 9001 & 27001 compliant

UK Government IL3 certified

International Society for Pharma Engineering GAMP5



Microsoft[®] Global Partner Network[™] PARTNER OF THE YEAR

2006	Winner	Application Integration
2008	Finalist	Application Integration
2010	Finalist	Custom Development
2011	Winner	Application Integration
2012	Finalist	Government Solutions
2013	Winner	Cloud Solutions



Agenda

- Understanding Integration
- Integration Trends
- Microservices
- Microservices & PaaS
- Container
- Microservice Integration



Understanding Integration



Integration

Enterprise Application Integration

- Adaptation
- Mediation
- Transformation
- Routing
- Orchestration

• B2B

• EDIFACT/X12

- TRADACOMS
- HL7
- Partner Management
- VANs

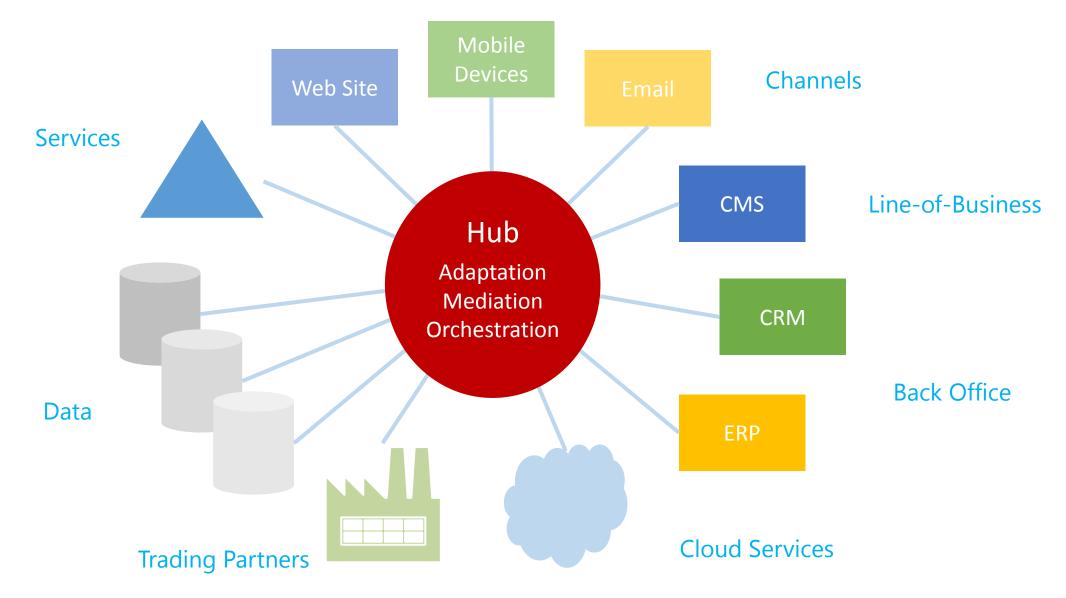
Electronic Data Integration

Data Integration

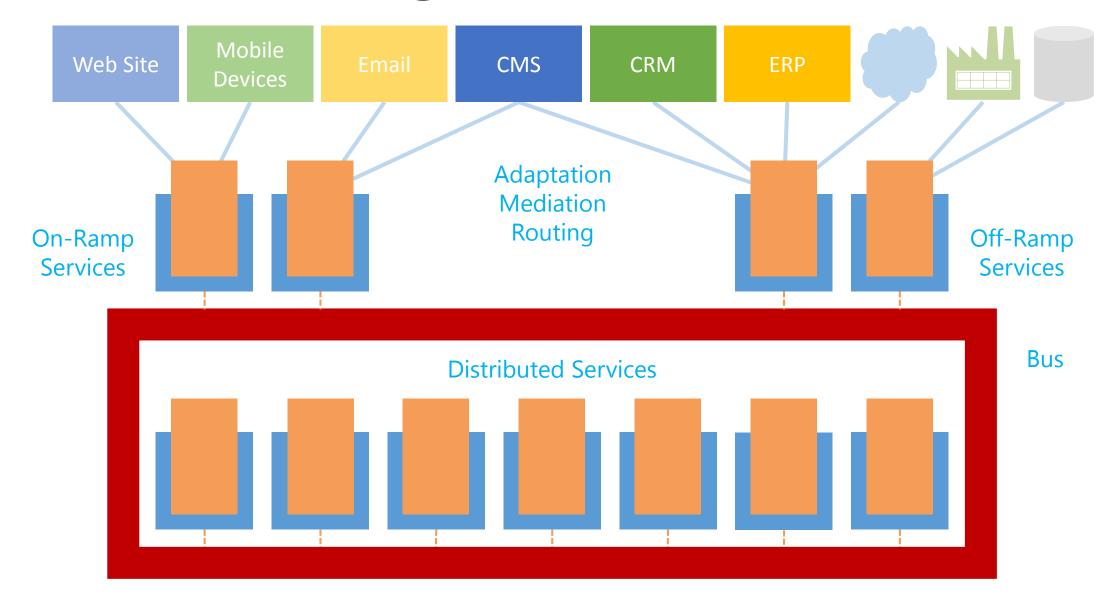
- Extract, Transform and Load
- Data Warehousing
- Change Data Capture
- Federation
- Master Data Management



Enterprise Application Integration (EAI)

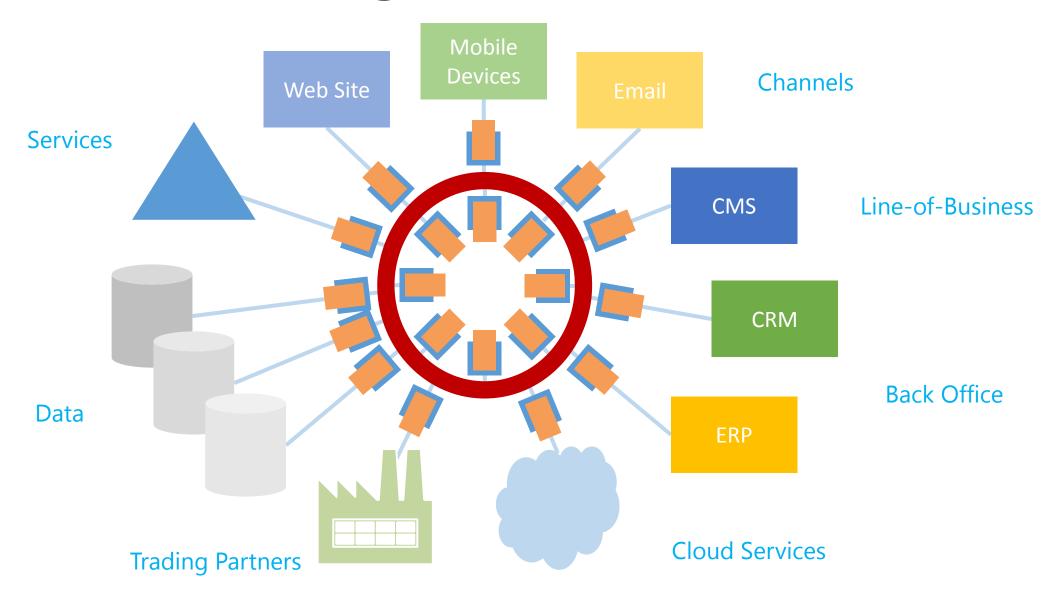


ESB Service Integration



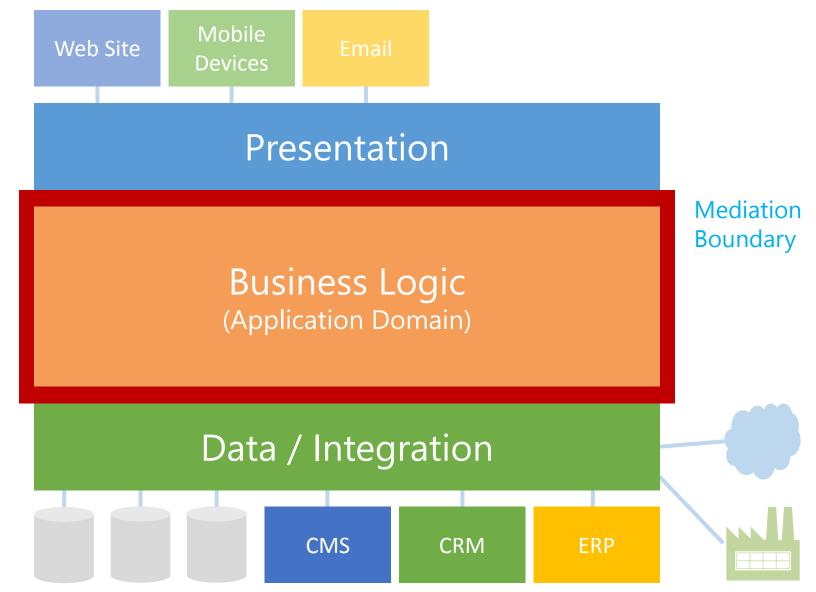


ESB Service Integration



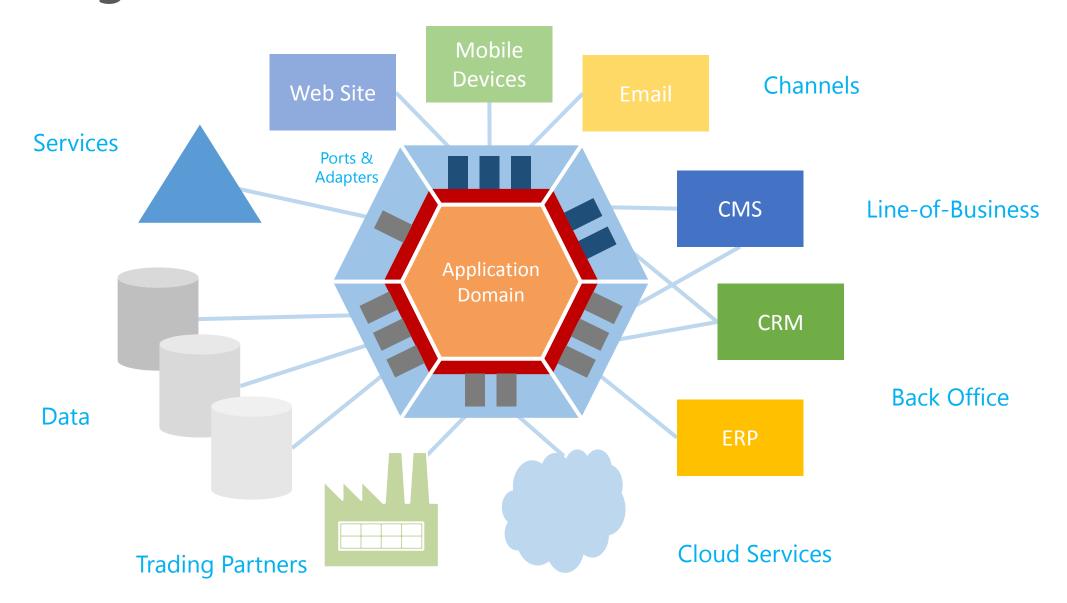


Layered Architecture



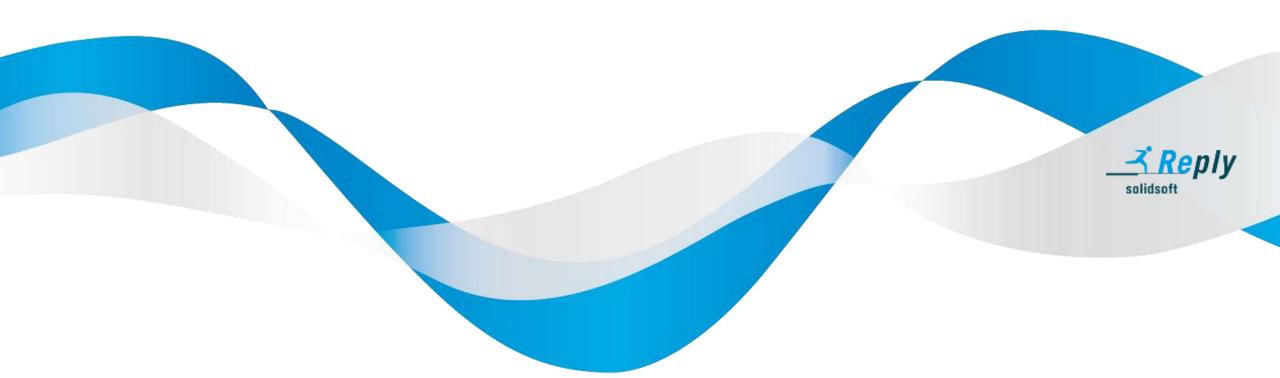


Hexagonal Architecture - Alistair Cockburn





The Changing Face of Integration

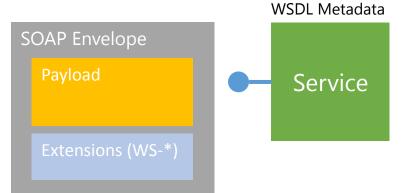


Standardising the Interface







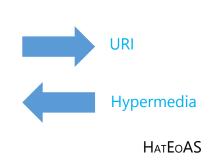


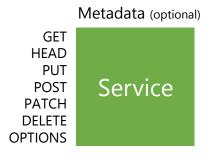
Wraps messages in standardized, extensible envelope.

Provides strongly-typed interfaces











"Supports software engineering on the scale of decades"

Roy Fielding



Cloud Services Integration



































































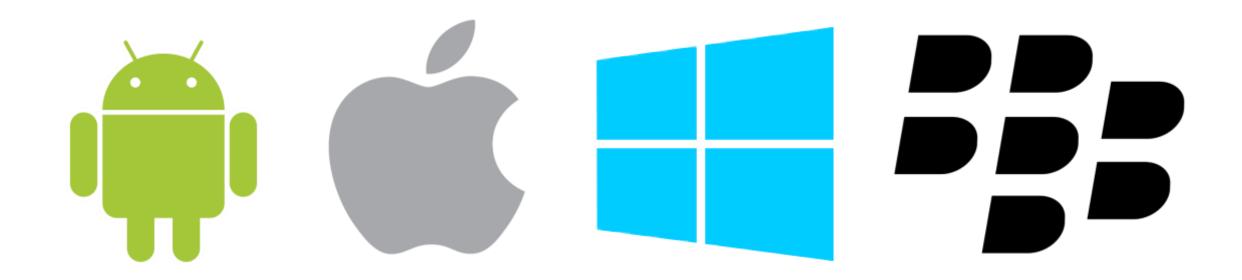




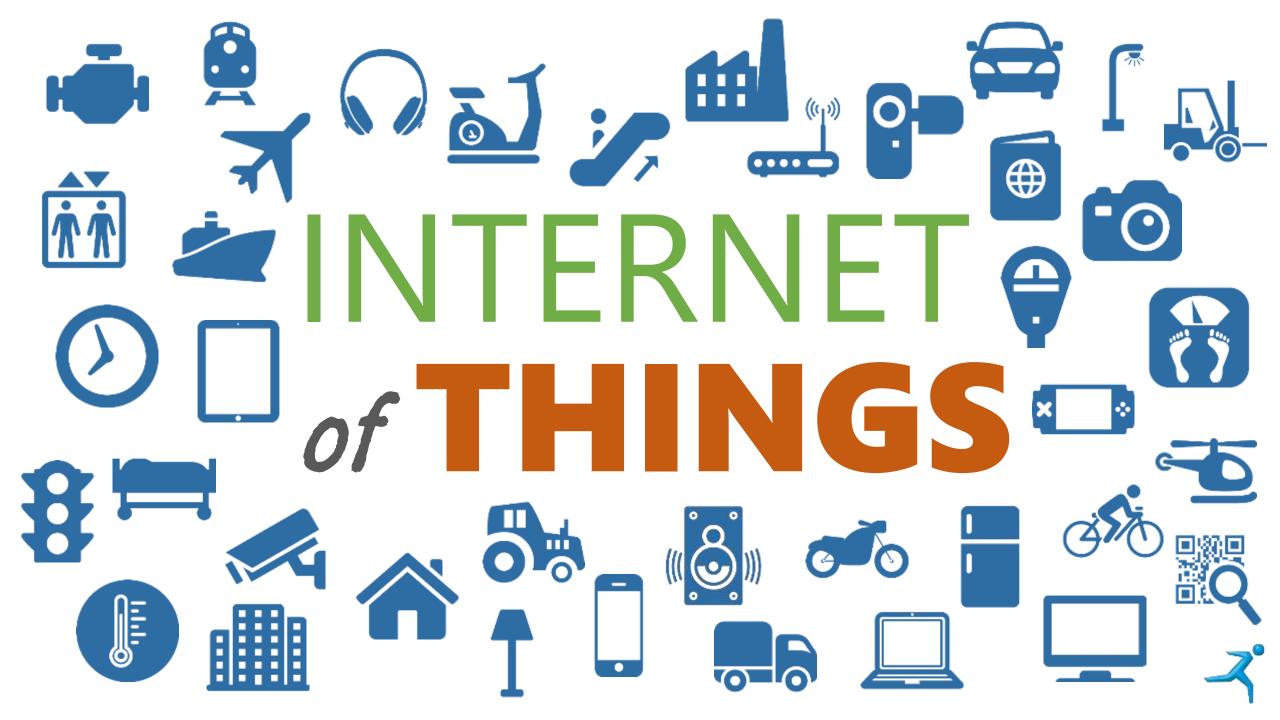




Mobile Application Integration







iPaaS Integration Platform-as-a-Service

ORACLE!







On-Premises Systems



EAI Server / ESB

Hybrid

Fidelity

- Connectors
- Mediation
- Workflow

iPaaS

- Elastic & available
- No Capex
- Usage-based cost
- Browser-based tools



Aspirations

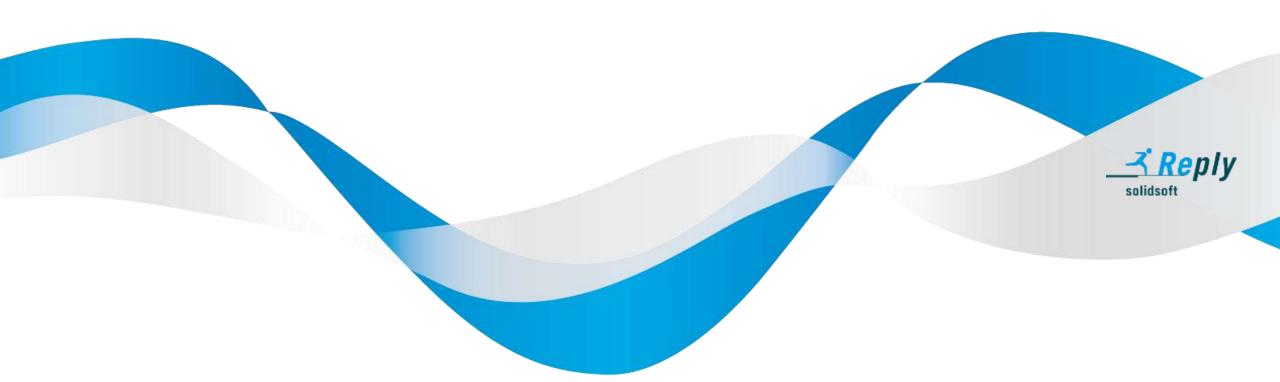
- Simplicity
- Velocity
- Evolution
- Democratisation

Cost Reduction

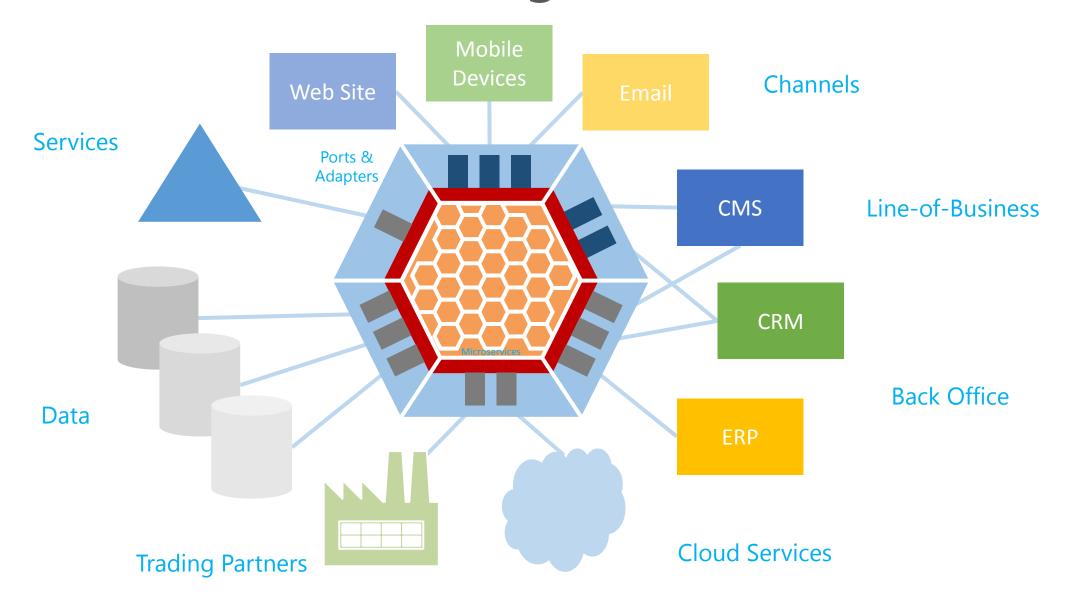




Microservices

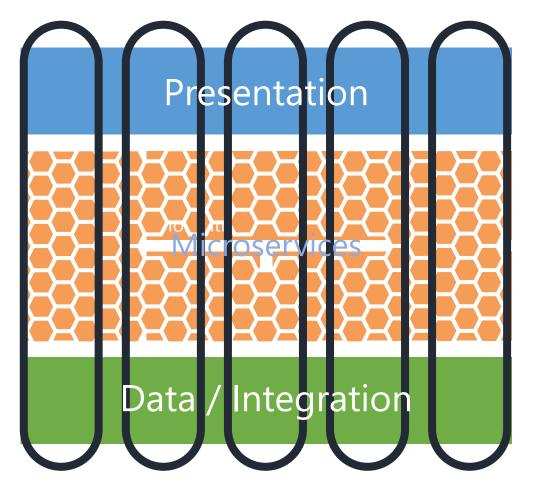


Microservices in Hexagonal Architecture





Microservice Principles







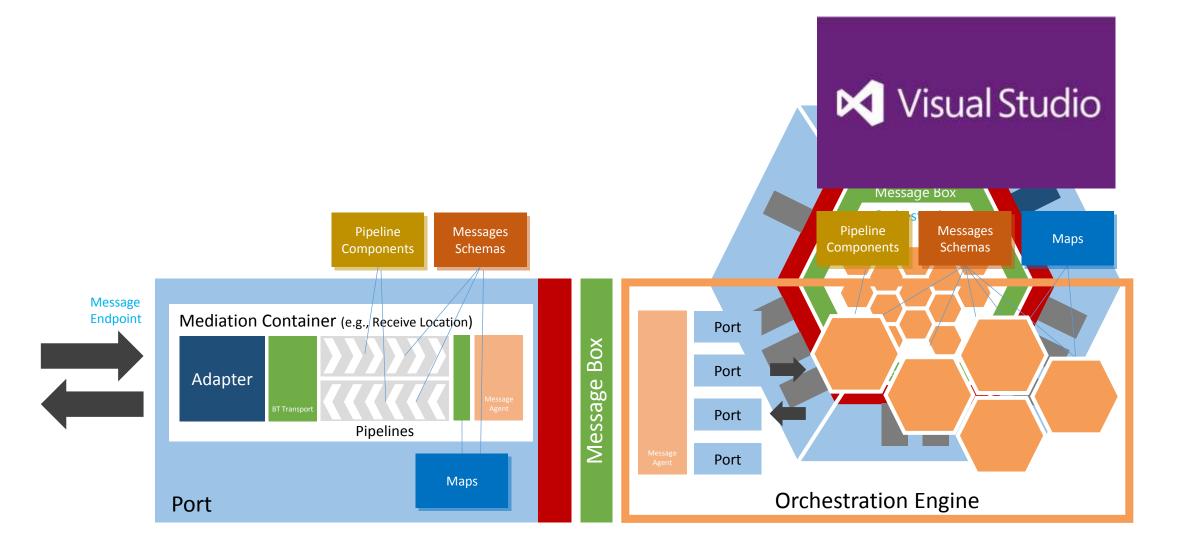
Microservices

Load Balancer | Compared to the compared to t

• Emad Benjamin: http://bit.ly/1BmMuet

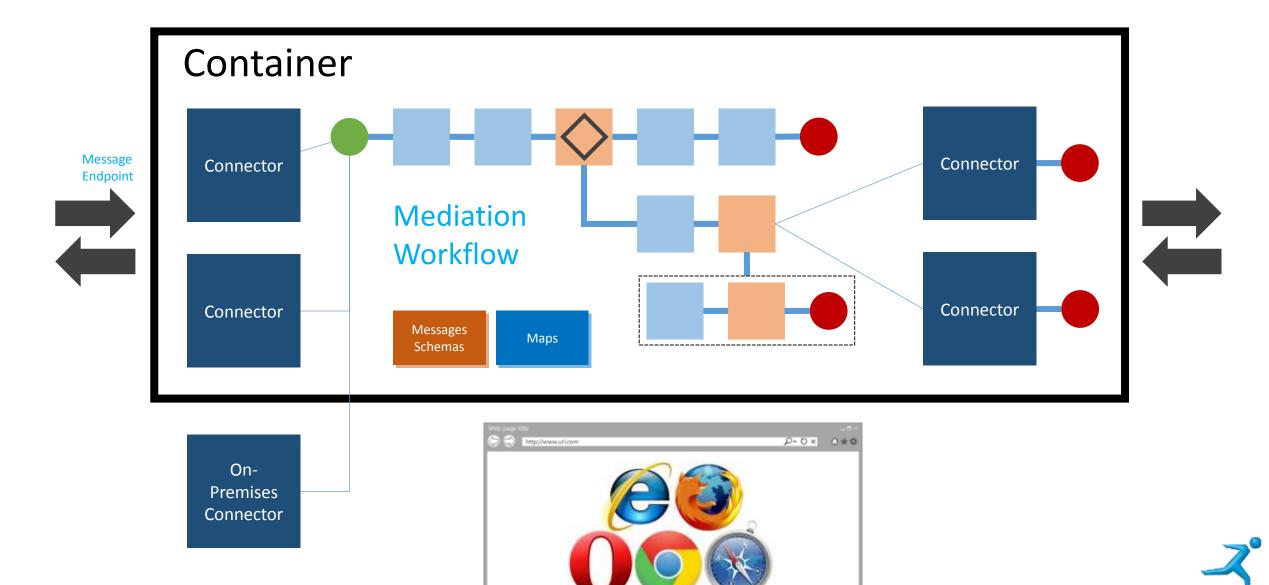


BizTalk Server and Microservices

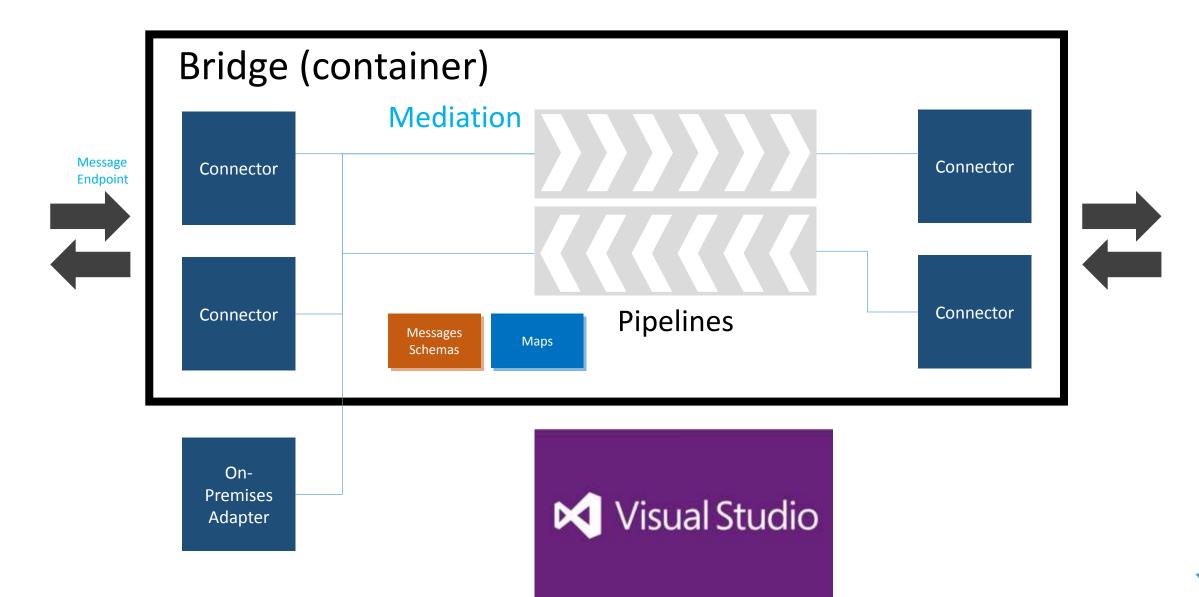




iPaaS and Microservices

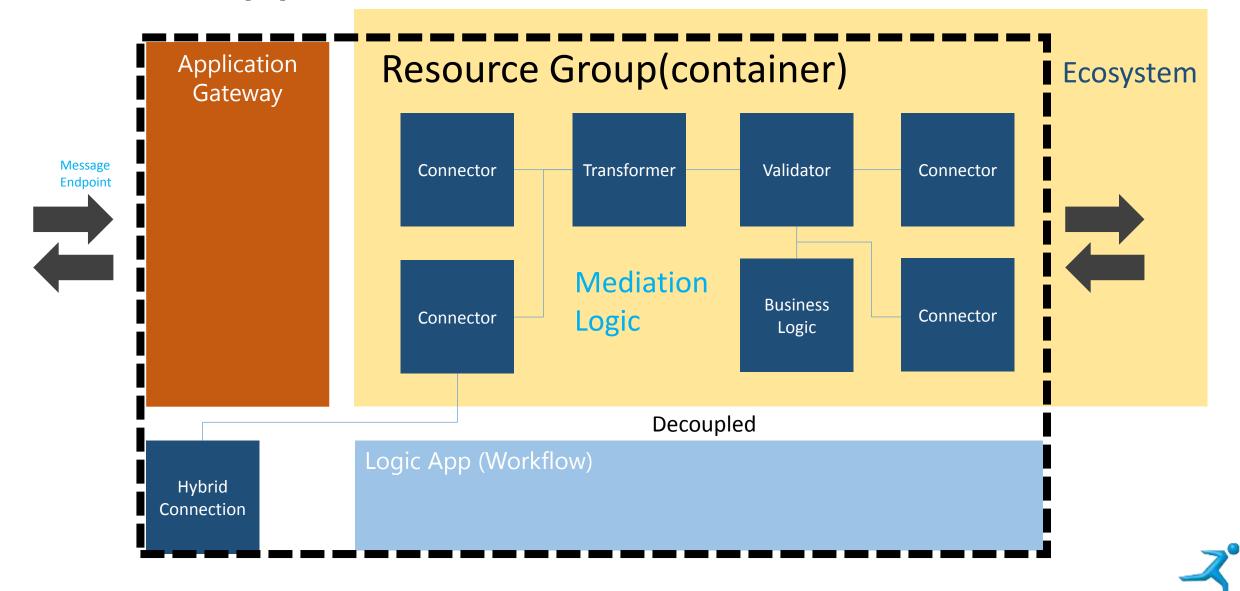


Azure BizTalk Services - MABS





Azure App Service and Microservices



Application Gateway

External Inbound Calls



Calls between microservices



Application Gateway

Runtime

- Name resolution
- Isolated Storage
- Shared Config

Proxy

- API Logging
- API access level
- Transforming API definition

Identity Broker

- AAD & social login
- Identity brokerage
- Secure token store

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- Control of the contro
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- **RBAtimel8**scrashes

Isolated storage

Shared config

Secure token store



Containers



Azure Containers Today

PaaS Roles

Web Roles
Worker Roles

App Service

Web Apps
Mobile Apps
API Apps
BizTalk Apps
Logic Apps

MABS



Windows Server Containers

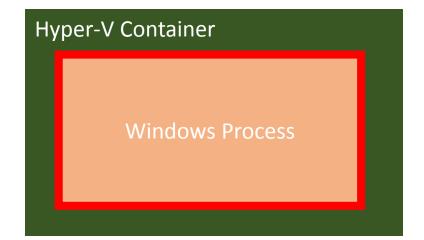
Docker Client

Docker Engine

Windows Process

Windows Server Container

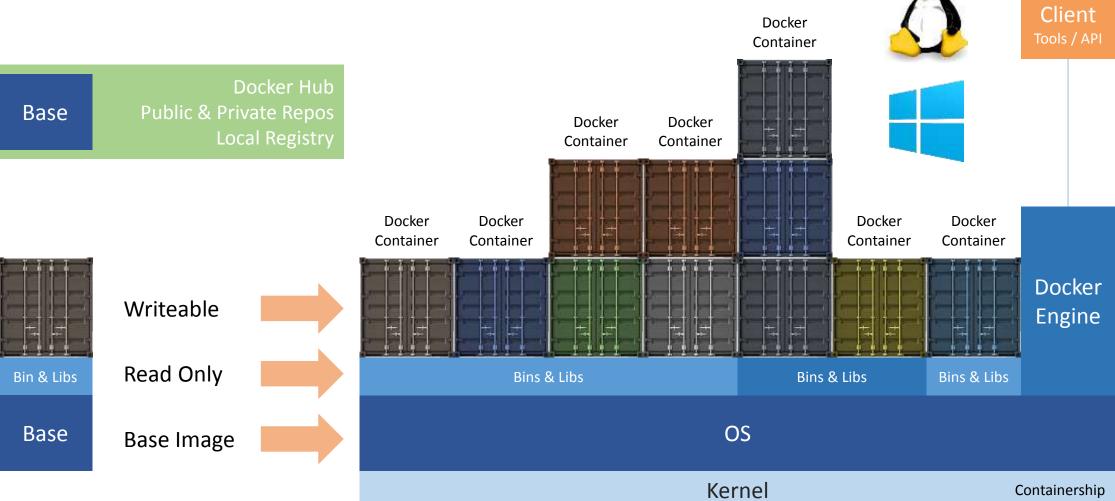
Windows Process



OS Kernel









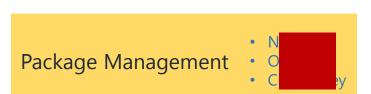
Docker

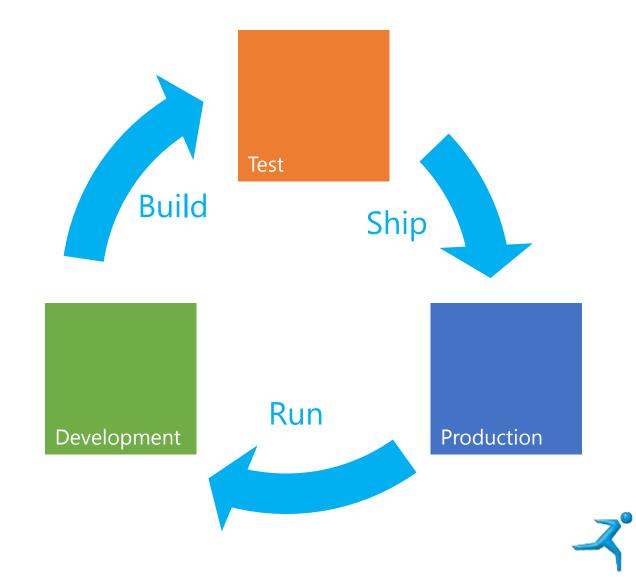
Docker and DevOps

Docker Image Repos

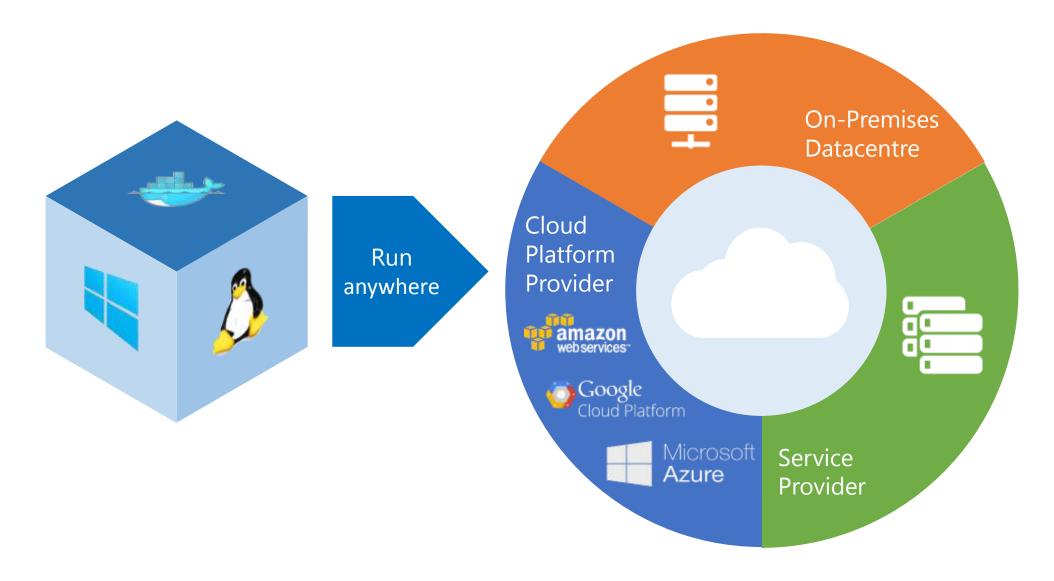
Build scripts, frameworks and tools

Source Code Repo





Docker and Platform Independence





Evolving PaaS Landscape





- Cloud Foundry
- **Docker Container Service**



• App Engine

Microsoft Azure



- Elastic Beanstalk
- EC2 Container Service
- Lambda























- Dynos









Docker Swarm







PaaS 'V2'

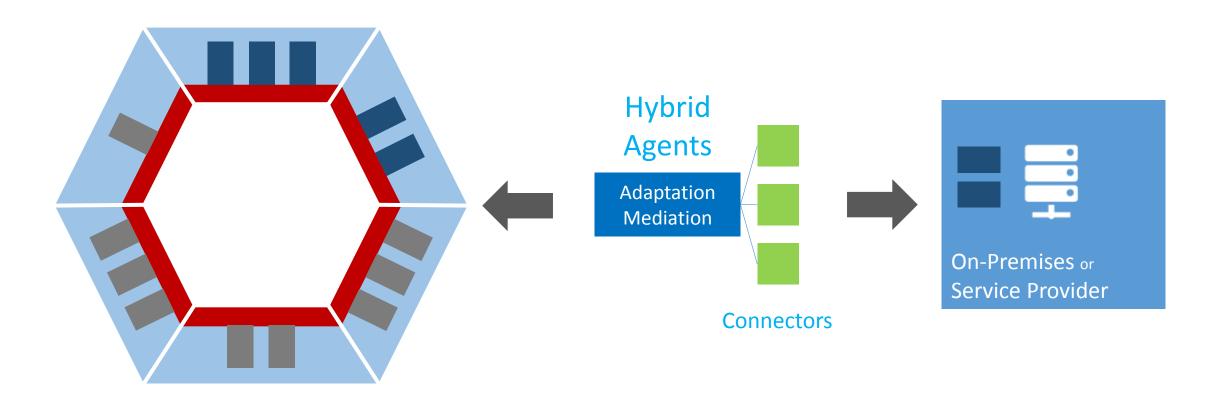
 Resource Groups Docker for WIndows

Container Engine











Application, Service or Data Store



Network Stack Inherent complexity wont go away



Connectors

- rs
- Transport protocols
- Application protocols
- Message endpoints
- Metadata and discovery
- Connections and pooling
- Timeouts
- Authentication
- Push and pull
- Acknowledgments
- Fault messages
- Batch size
- Metadata harvesting

Transport

- Batch Control
- Message model
- Reliable messaging
- Deduplication
- Transaction control
- In-order delivery
- Message priority
- Throttling
- Content streaming and chunking
- Buffering

Session

- Message exchange patterns:
- One-Way
- Two-Way Half-duplex
- Two-Way Full-duplex
- Certificate management
- Trust
- Scheduling
- Fast Fail
- Retry
- Recovery
- Failed message handling

Presentation

- Encoding & decoding
- Encryption and decryption
- Enveloping
- Framing and disassembly
- Validation
- Fixing
- Filtering
- Enrichment
- Transformation
- Caching
- Auditing
- Logging

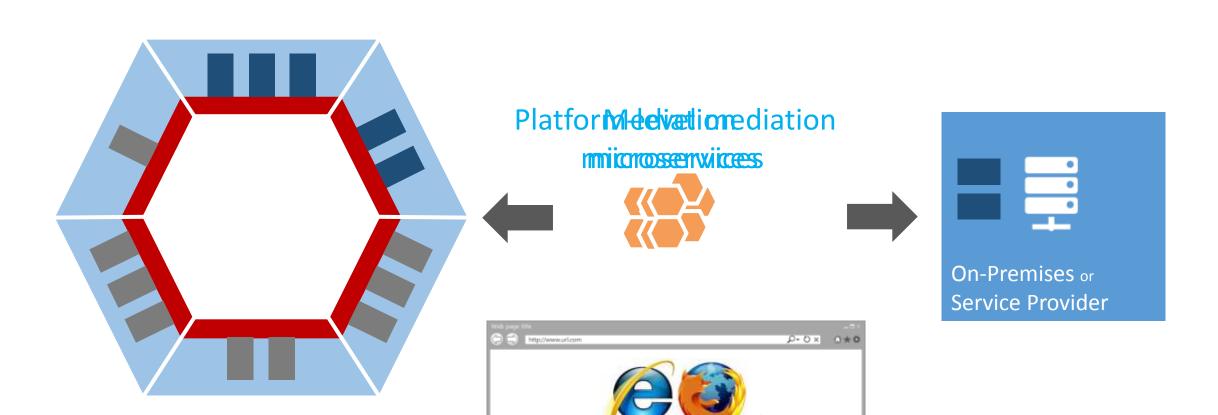
Application

- Persistence
- Routing
- Operation
- Publishing
- Subscribing
- Correlation

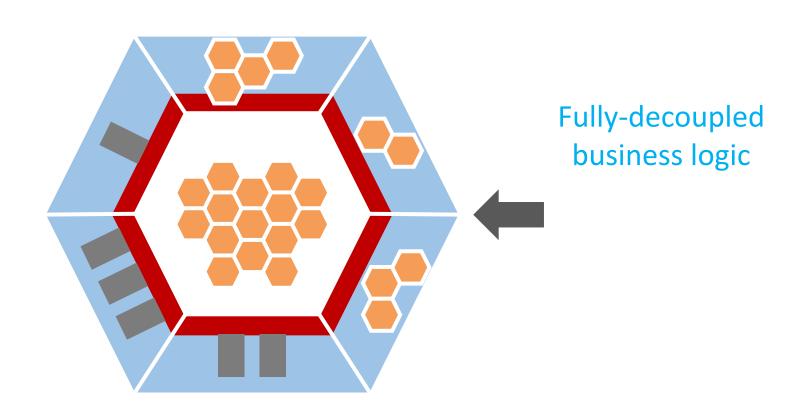


Mediation Framework – Composition, Configuration, Deployment, Hosting, Management, Monitoring, Tracking, Disagnostics



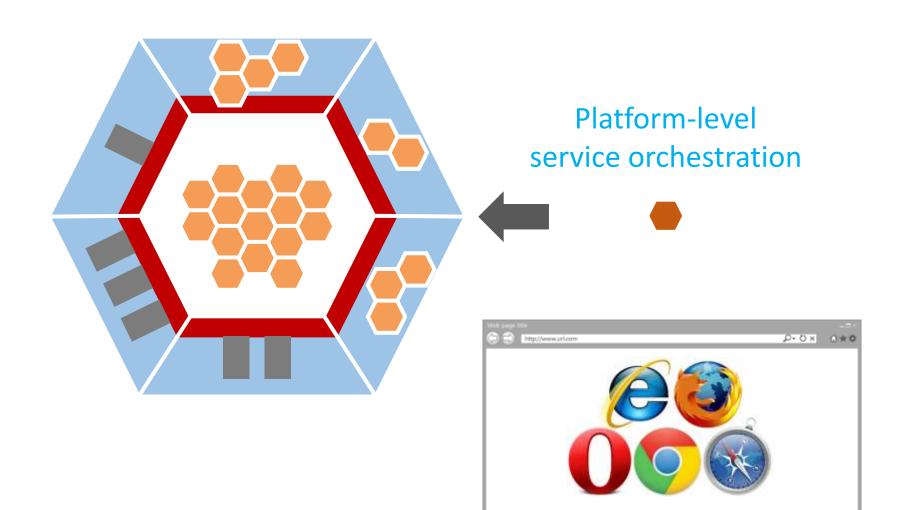






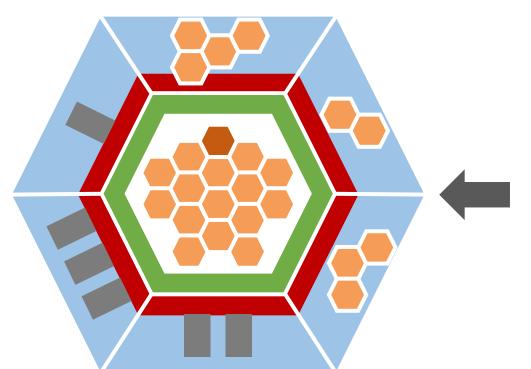










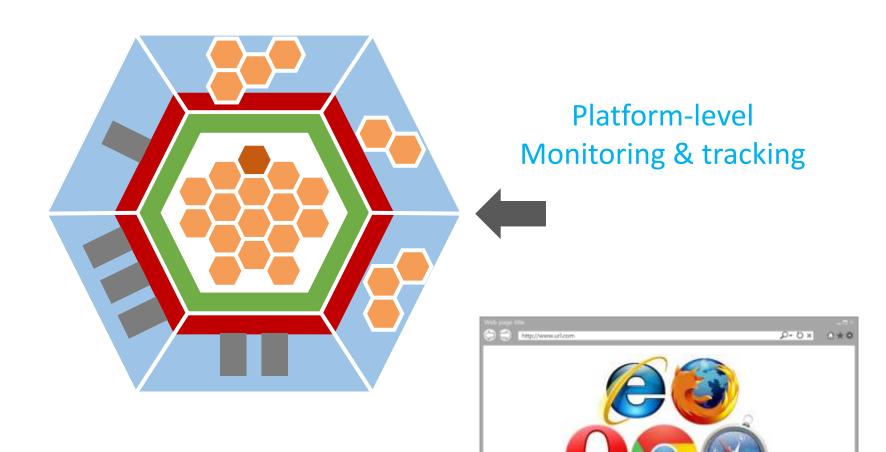


Route by any means

- Direct
- Data stores
- Cache
- Queues
- Topics & subscriptions
- Event hubs

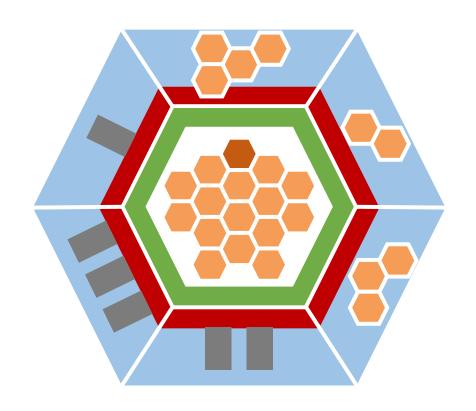








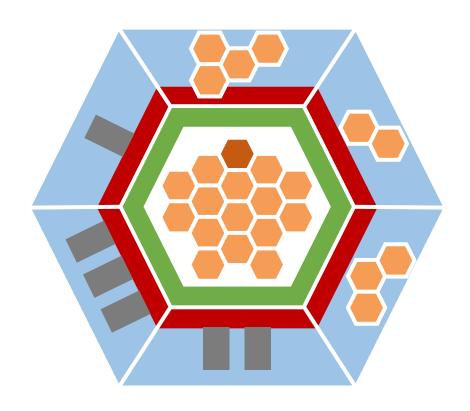




Favour Horizontal Scaling







Technology agnosticism





Thank You!

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