LET'S
BUILD
TOMORROW
TODAY

Application Centric Microservices

Ken Owens, CTO Cisco Intercloud Services

Redhat Summit 2015

Cisco live!

Agenda

- Introduction
- Why Application Centric
- Application Deployment Options
- What is Microservices Infrastructure
- How do you enable Microservices in the enterprise, cloud, and multiple clouds?
- Introducing Shipped
- Conclusion

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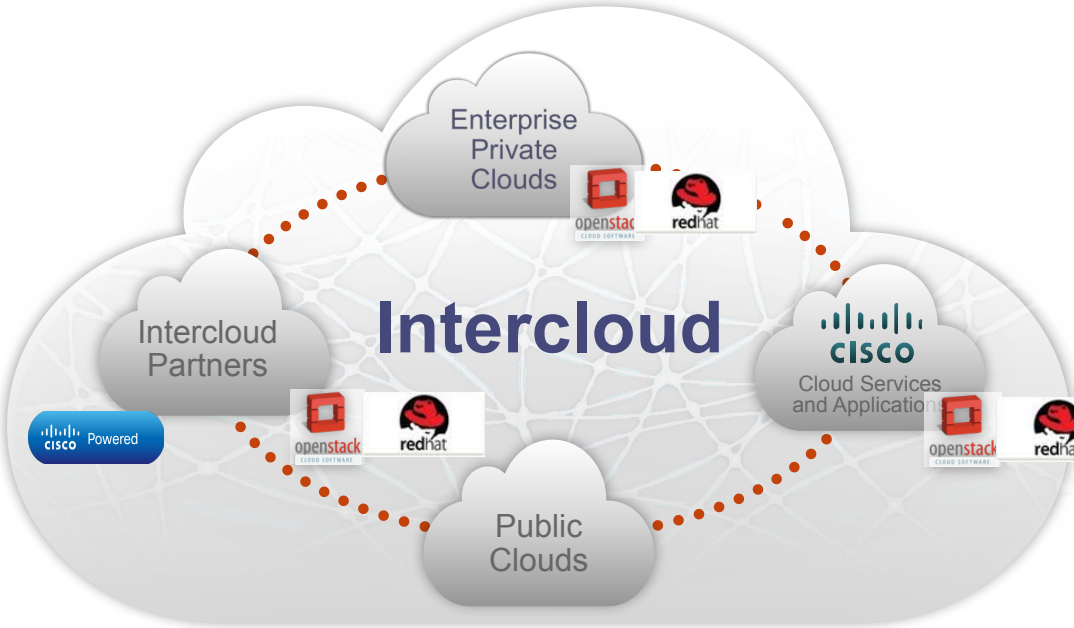
Introduction

- Vision of Intercloud
- Cisco as a Service
- Platform for IoE



VM Portability. Application Centric Policy Control.
Partner Ecosystem. Data Virtualization. Open Standards

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Why Application Centric?

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Developers are Driving the Market

- Elastic and “Web-Scale”
- Flexible
- Reduced time to market for apps
- Loosely-coupled components
- “Ruthlessly Standardized”

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Alignment to Customer Value (Business Outcomes)

- Services vs Legos
- Product Alignment vs Project Alignment
- Fail Fast
- Organizational Aspects
- Software Defined Disruption

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Practical Examples In The Cloud

- Cloud must enable application integration, development, and deployment
- Cloud Native
- Cloud Valid
- Legacy Architecture

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Application Deployment Options

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- Openstack as a Service (IaaS, IaaS+)
  - Openstack APIs
  - Orchestration
  - BSS
- Marketplace/Marketplace Federation
  - SaaS
  - Abstraction of underlying infrastructure (IaaS)
  - Geo & Operating Model
- Application Enablement
  - Cloud Native
  - Cloud Transformation

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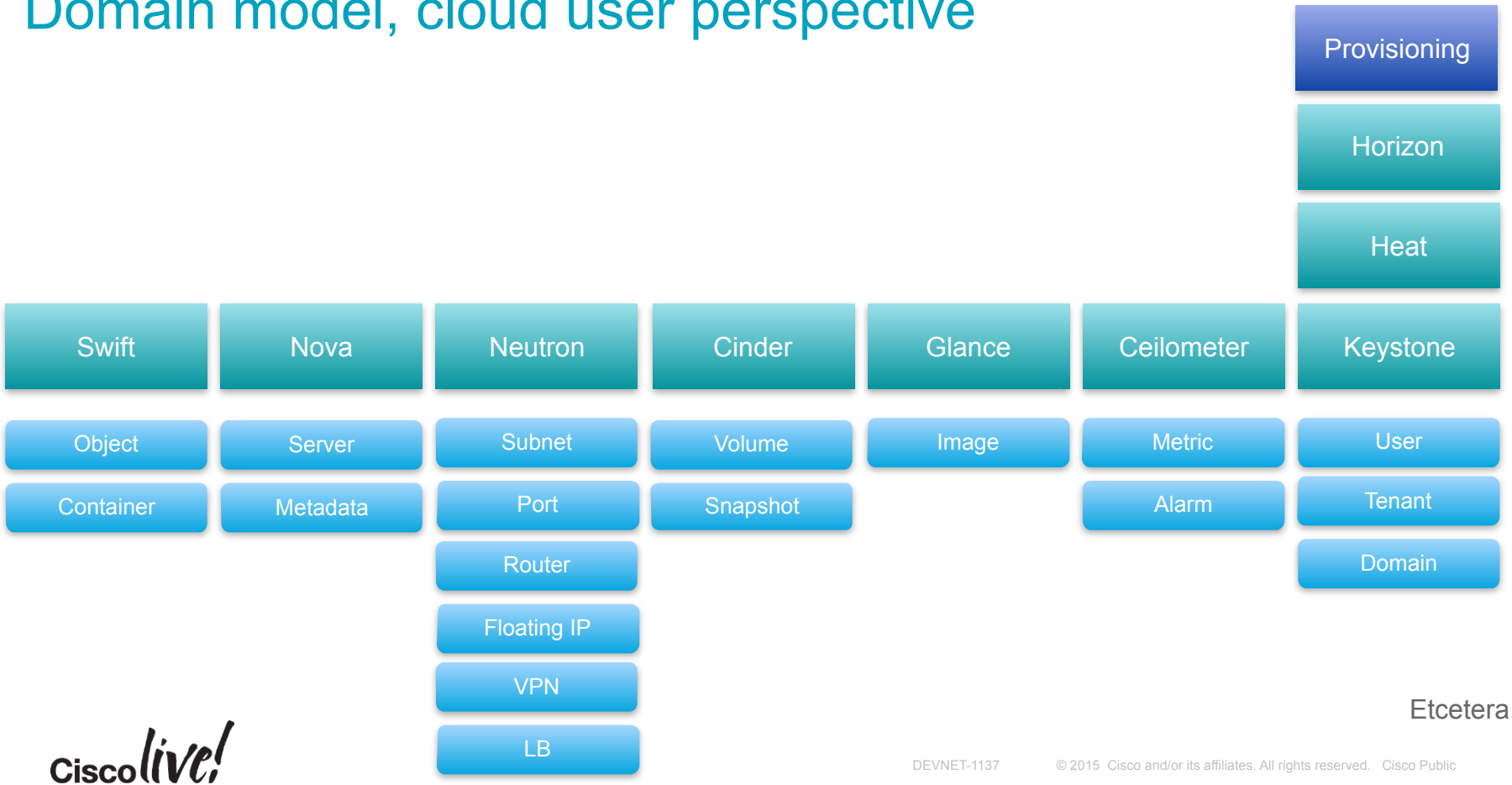
Domain model, cloud user perspective



Etcetera.

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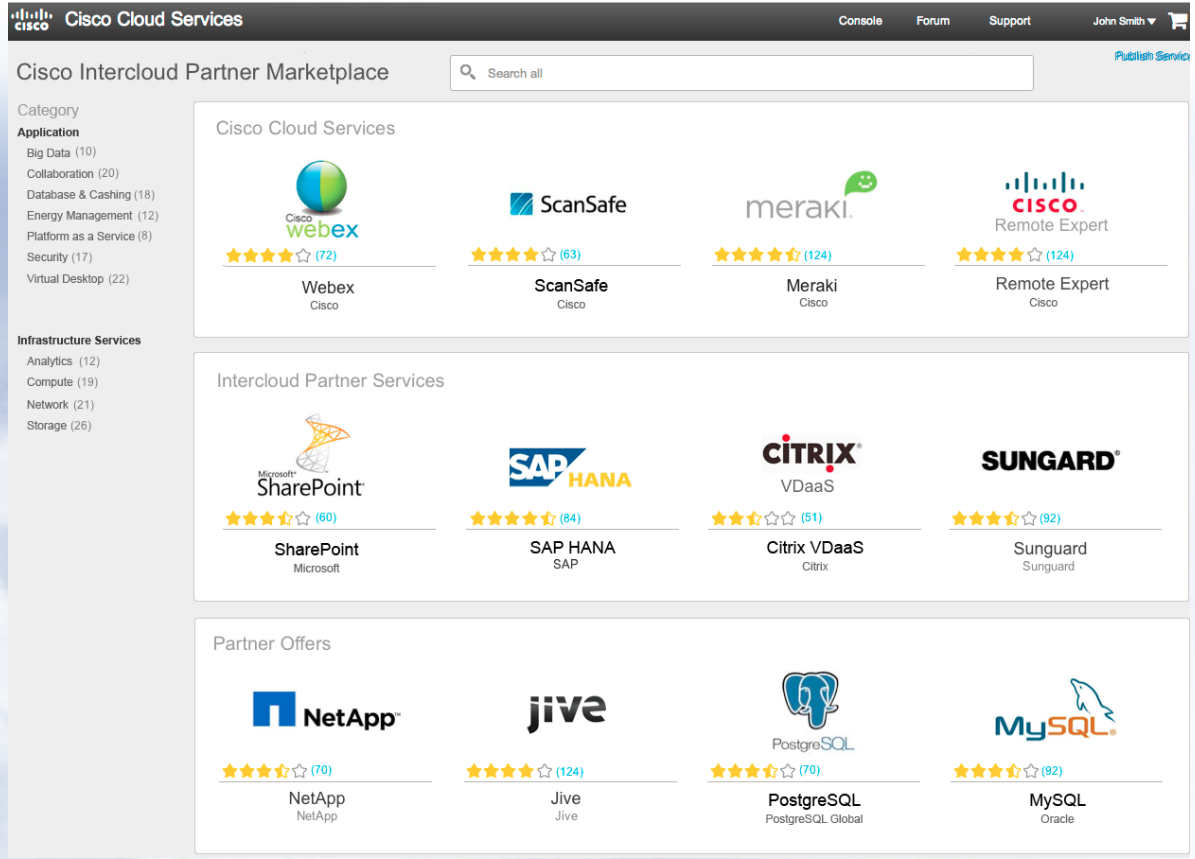
Customized Cloud Services Marketplace



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Developing Applications in the Cloud

- Cloud must enable application integration, development, and deployment
- Consumers are interested in agility, flexibility, and business outcomes
- How do we support applications on CCS
- Overview of use cases
  - Cloud Native
    - Integrated or Interoperable-> CICD
  - Cloud Valid
    - Lift & Shift or Interoperable ->CICD
  - Legacy Architecture
    - Lift & Shift -> CICD

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What is Microservices Infrastructure

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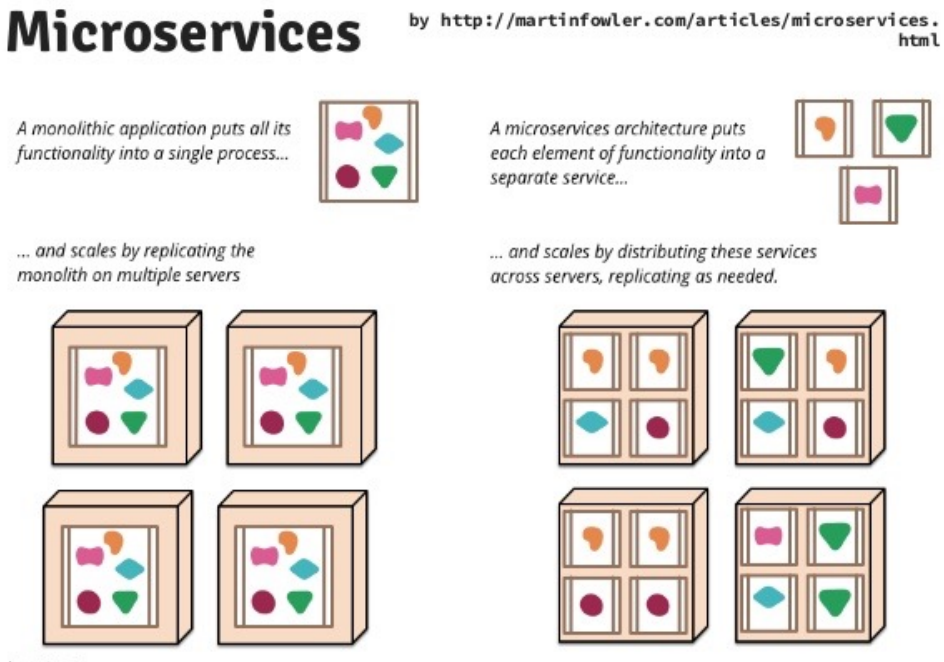
Microservices Definition

- Software architecture style
  - complex applications are composed of small, independent processes communicating with each other using language-agnostic APIs.
  - Application services are small, highly decoupled and focus on doing a small task.
- SOAish
- Quick Comparison



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Microservice Advantages (Top of Mind)

- ✓ Scalability
- ✓ Resilience / fault isolation
- ✓ Individual service deployment
- ✓ Small code base with well defined boundaries.
- ✓ Flexibility to choose best languages and technologies
- ✓ Independent development, build and deployment cycle of each Microservice
- ✓ Enables faster features iteration
- ✓ Less resistance path to adopt newer technology in future

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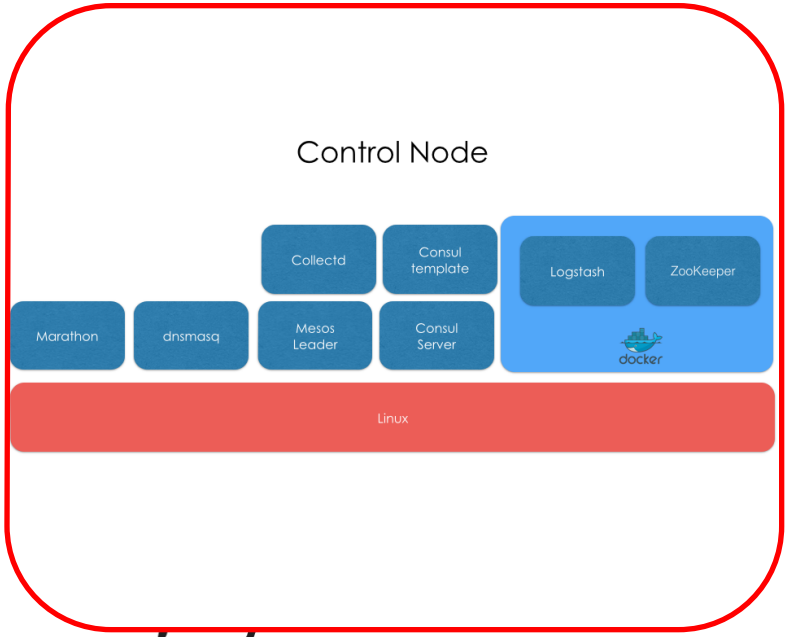
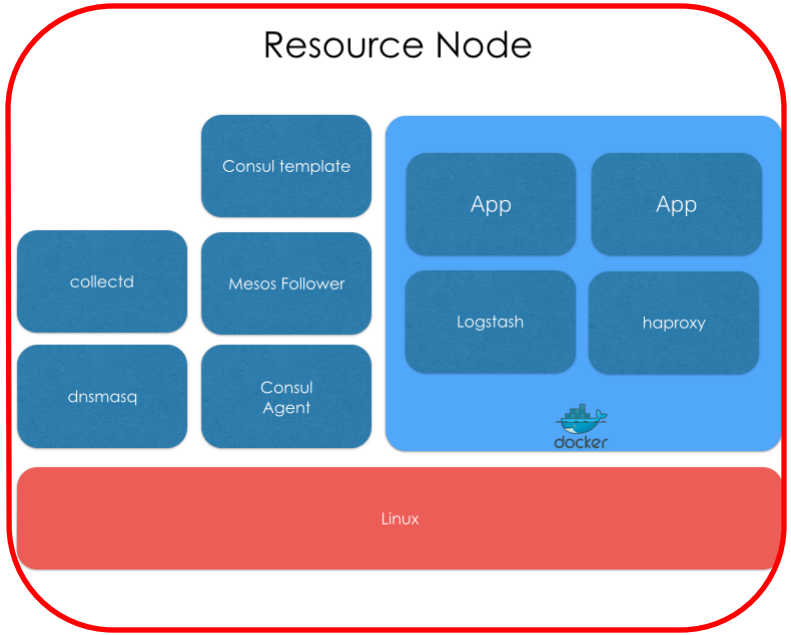
Micro Services Infrastructure – 0.3

GitHub

CiscoCloud / **microservices-infrastructure**

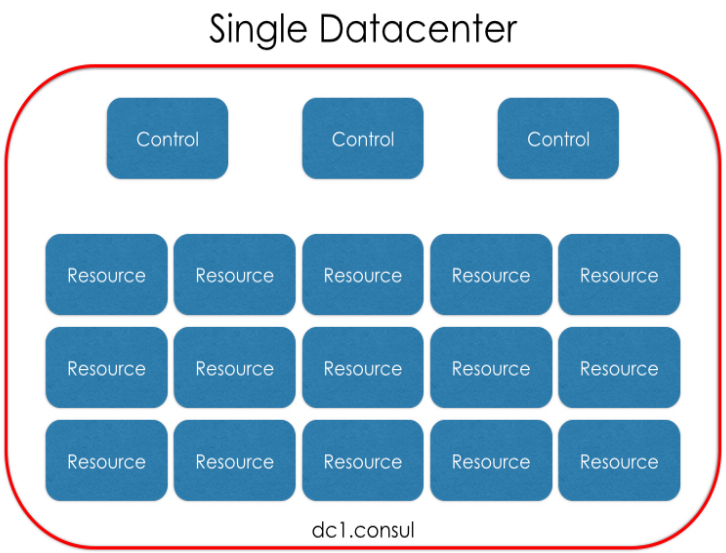
Unwatch 120 | Unstar 770 | Fork 60

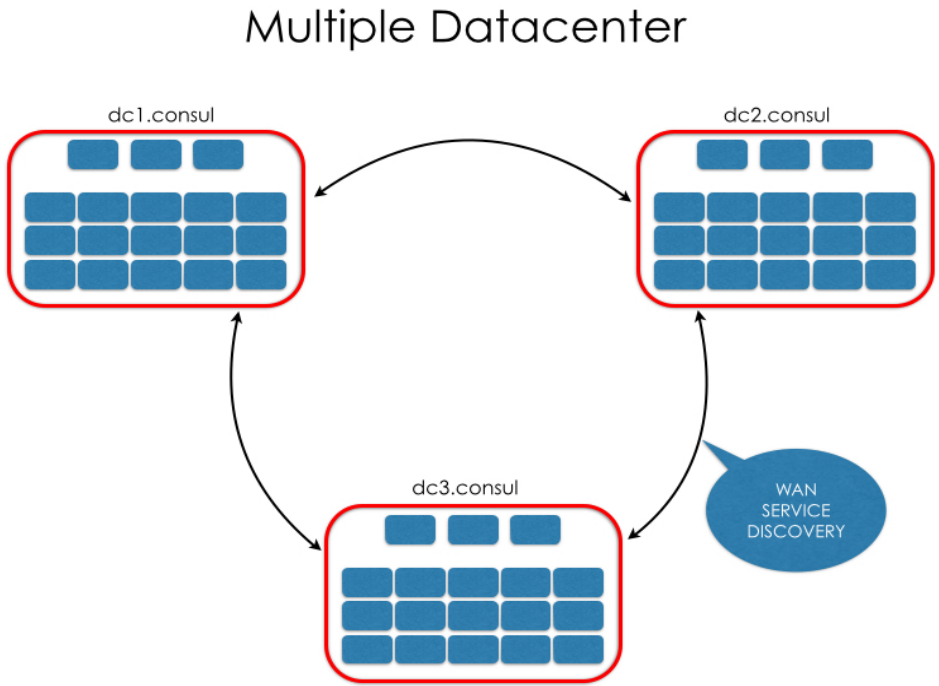




Cisco live!

Micro Services Infrastructure





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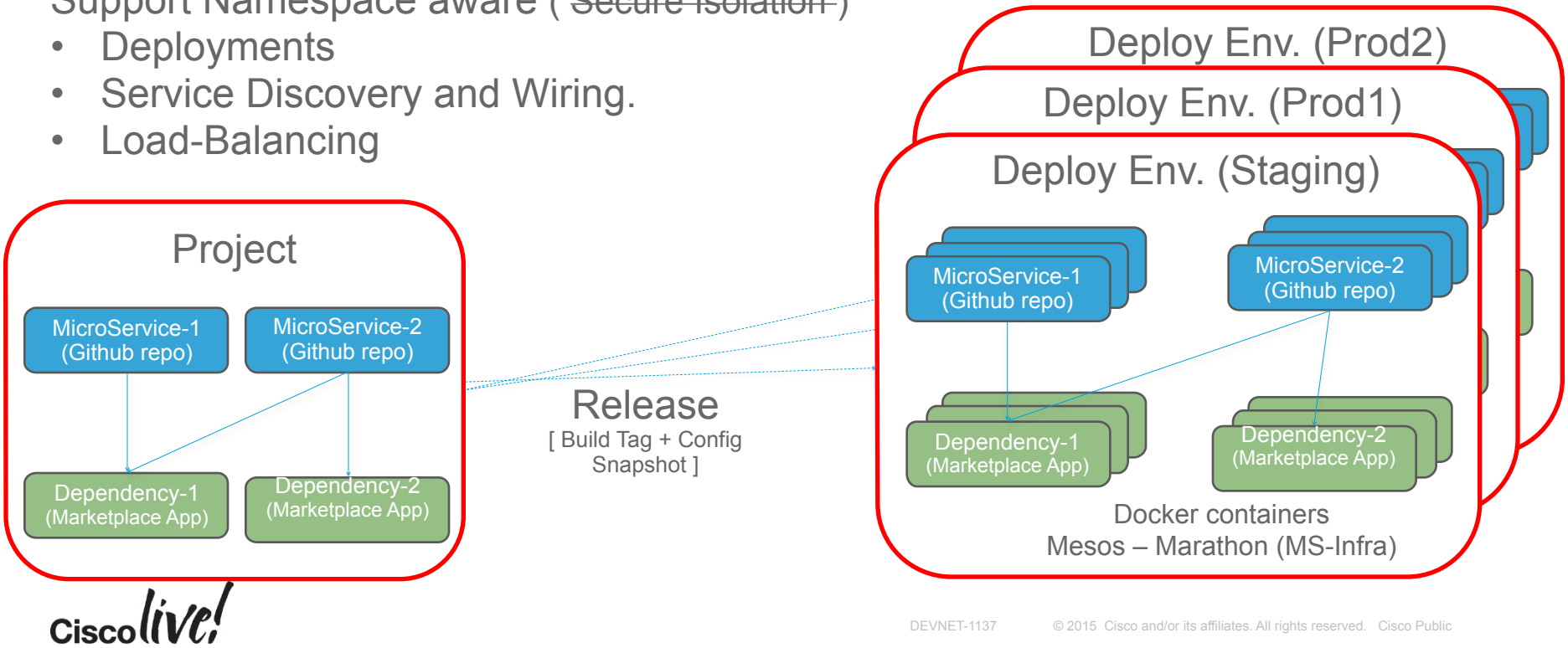
Microservices Deployment Layout

Support Namespace aware (~~Secure Isolation~~)

- Deployments
- Service Discovery and Wiring.
- Load-Balancing



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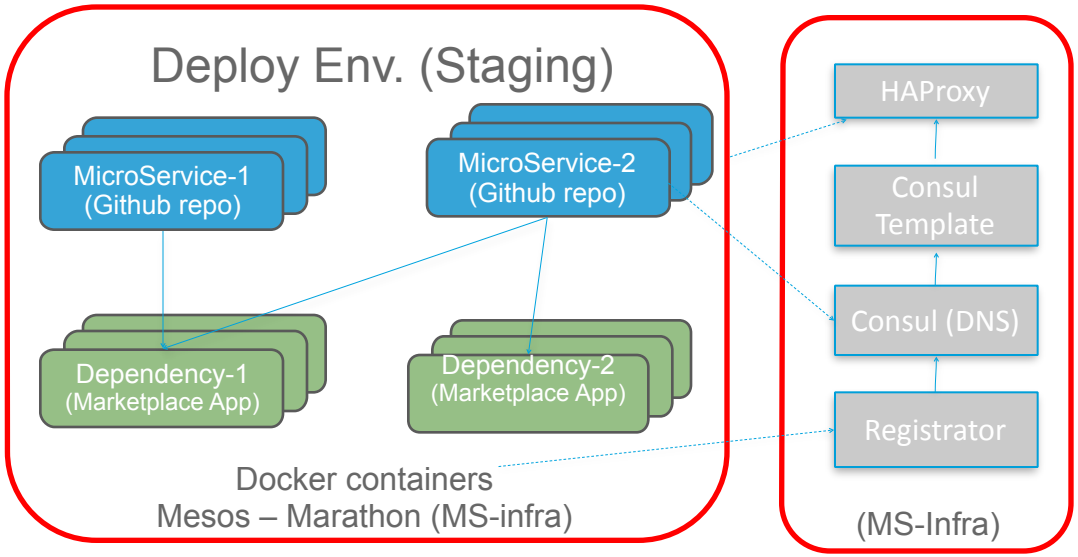
Service Discovery & Load Balancer



1. Registrator monitors Docker events
2. Registrator adds docker instances host:port to service-name mapping to consul.
3. Consul exposes information via inbuilt DNS
4. Consult templates watches changes in Consul
5. HAProxy configuration is updated based on changes in consul
6. Namespace naming convention
   environment.project.service.shipped.com

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It's NOT just about where Cisco is going.
- It's a movement

- Partnering with leading DevOps tool providers:
  - HashiCorp
  - Mesosphere
  - OpenShift

- Intense focus on application and developer centric Service Design
- Exciting new community projects – Build with us:
  - Project Shipped
  - microservices-infrastructure
  - Container networking
  - OpenStack Congress Application Intent (Policy)

PoC and Contribute:

- https://github.com/CiscoCloud/microservices-infrastructure
- http://developer.cisco.com/Shipped

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How do you enable Microservices in the enterprise, cloud, and multiple clouds?

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Not so easily…

- Organization
- Process
  - It take weeks to create a development environment? Too much cost, red tape, politics
  - Non-prod environments are so different than prod?
  - Tests aren't always accurate
  - Versioning, updates are way too difficult
  - Developers can't get easy access to backend services (databases, security, etc.)
  - Hard it is to build new and innovative apps at #dayjob?
- Software Defined Challenges

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Software Defined Developer Challenges

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- Develop Private and Build and Deploy Everywhere – No Lock-in/ No Compromise
- Build through CI/CD flow designed for multi-cloud and “bring your own” with consistent packaging and versioning
- Easy to deploy with service discovery and automatic service availability
- Manage you application and all services from a single interface across private and multi-cloud environments

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Introducing Shipped

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Demo

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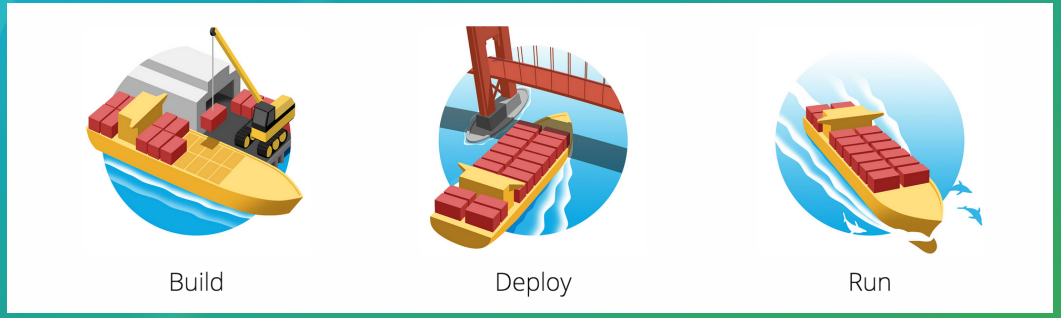

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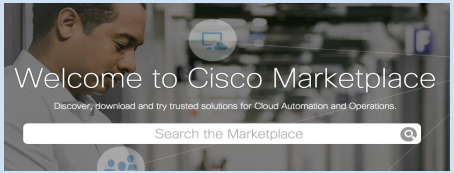
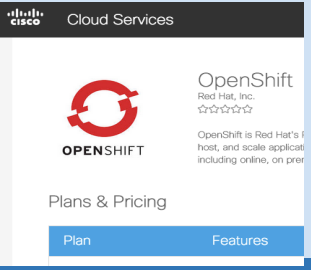
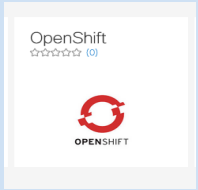
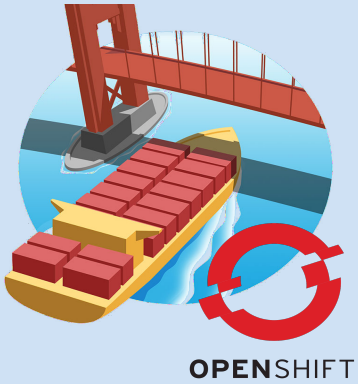
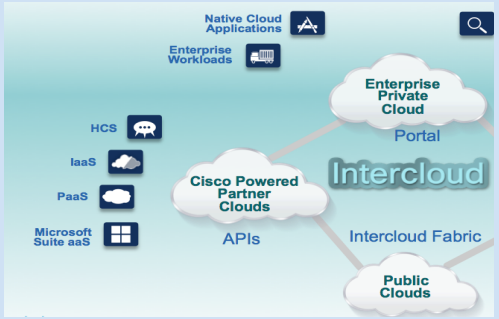










Automated Deployment of OpenShift from Cisco Marketplace

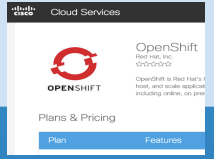
Soon

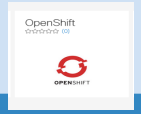
Project Shipped and OpenShift Integration.

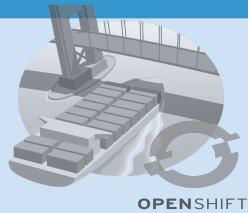
Q3

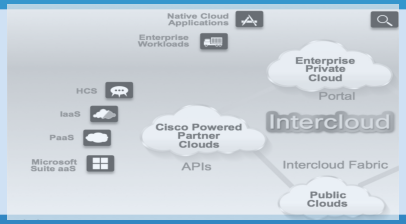
PaaS as first-rate Intercloud Citizen. Vs. Tenant VM's.

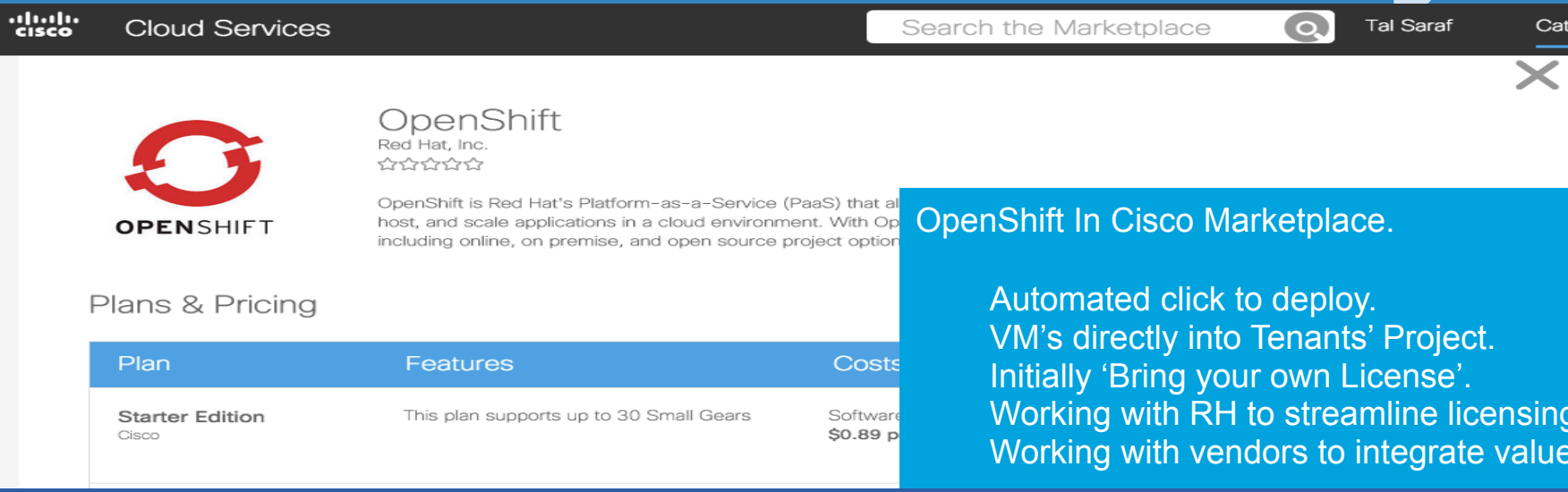
Marketplace







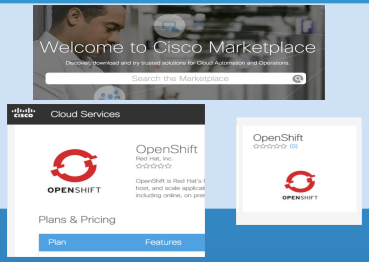


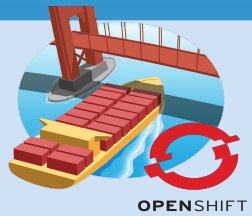


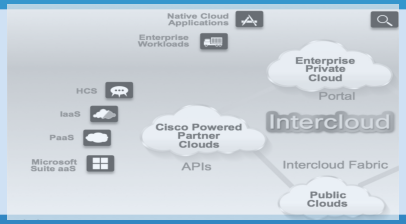
OpenShift In Cisco Marketplace.

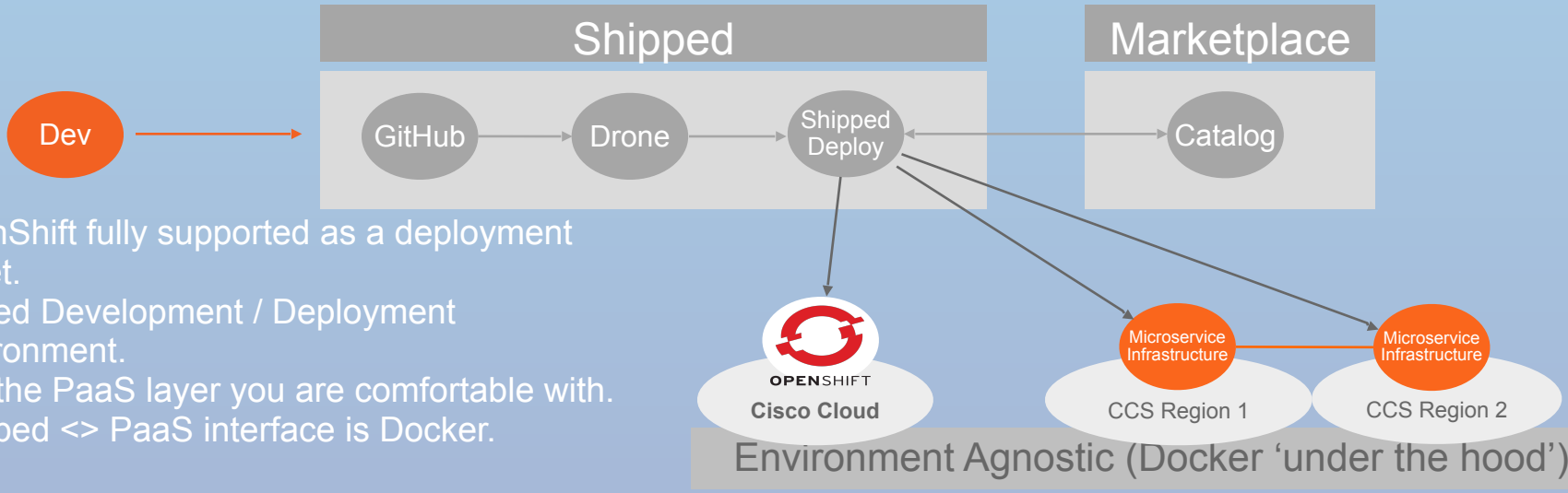
- Automated click to deploy.
- VM's directly into Tenants' Project.
- Initially 'Bring your own License'.
- Working with RH to streamline licensing.
- Working with vendors to integrate value.

Shipped



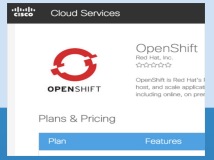


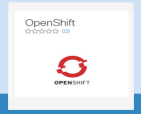


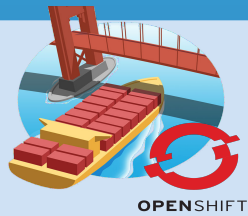


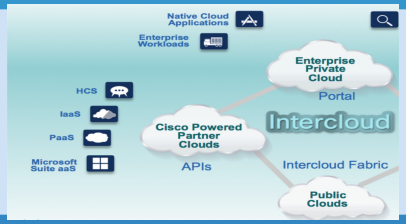
- OpenShift fully supported as a deployment target.
- Unified Development / Deployment Environment.
- Use the PaaS layer you are comfortable with.
- Shipped <> PaaS interface is Docker.

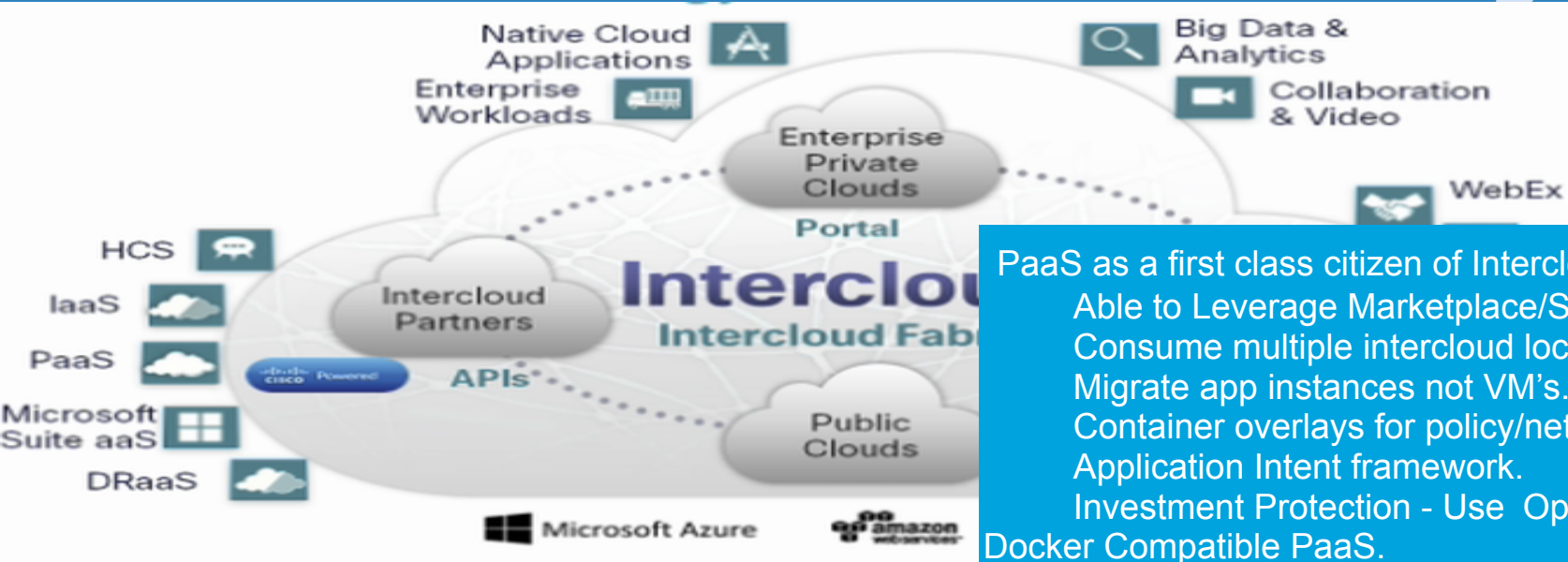
Future: Intercloud PaaS











PaaS as a first class citizen of Intercloud.

- Able to Leverage Marketplace/Shipped.
- Consume multiple intercloud locations.
- Migrate app instances not VM's.
- Container overlays for policy/network.
- Application Intent framework.
- Investment Protection - Use Openshift/CF/ Docker Compatible PaaS.

Conclusion

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- Application Centric
- Composible Applications/ Microservices
- Platform for IoE = Project Shipped

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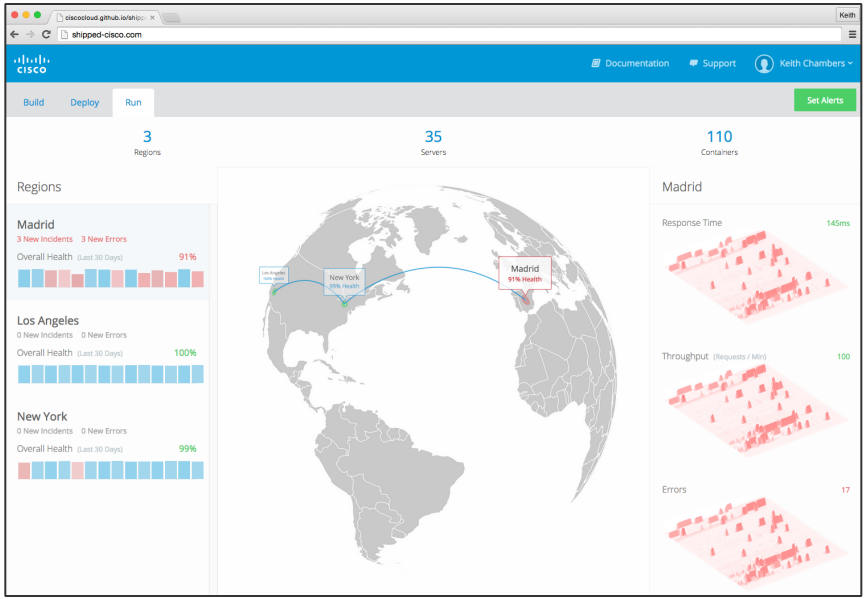
Software-Defined Distribution = Project Shipped

Build

Deploy

Run

- Experience Project Shipped @ Cisco Live!
  - Hands on - Hackathon
  - Use the product
  - Meet the entire engineering team
- Get free GitHub and Bintray private repos



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TOMORROW starts here.