# What is IBM Cloud private?

IBM Cloud private Overview

- A private cloud platform for enterprises to develop, test and run their applications in their datacenters with full control

- An integrated platform consisting of PaaS based on Kubernetes and developer services from IBM and partners

- Announced and available on June 27

- Evolution of IBM Bluemix Local, addressing the **previous** offering challenges and market needs more crisply

- An important offering for delivering modernized IBM middleware and data services to enterprise customers, and and accelerating the enterprise path to cloud native applications
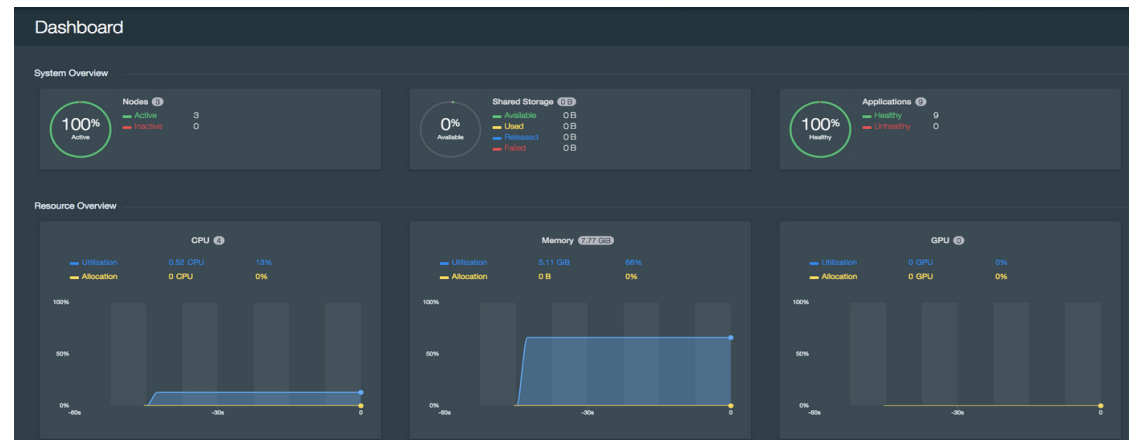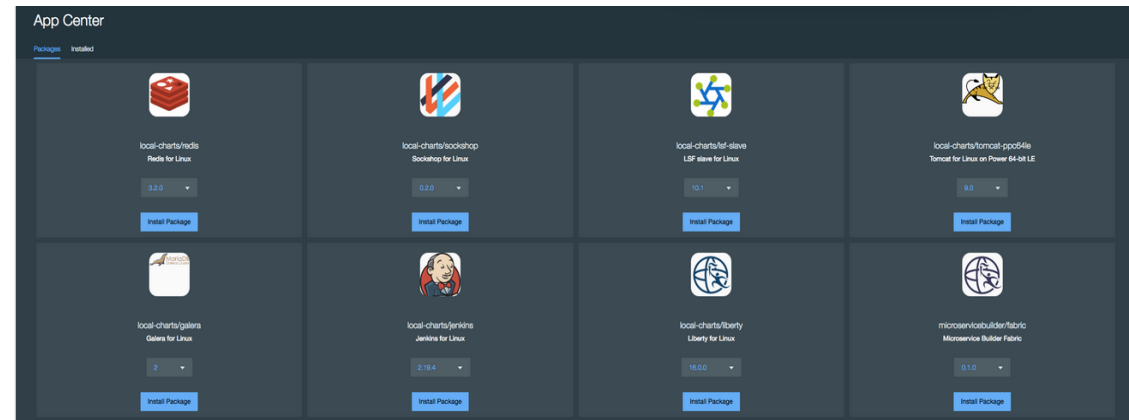
Paths for Evolving Existing Applications to Cloud

INDUSTRIALIZED CORE

AGILE EDGE

Existing Applications

Customer Information

Inventory Database

Business Process

➡️ Lift-*Standardize-Consolidate-Automate*-Shift

Bare metal, VMs, Containers, WASaaS, WAS Containers
Secure Connectivity, Data Migration, Automation, Planning tools

➡️ Contain-Expose-Extend

API Connectivity & Management, Caching, WAS Containers, Liberty
Integrated DevOps (UrbanCode), HA/DR, Security

➡️ Refactor in to Cloud-Native/Microservices

Cloud Foundry, Containers, Microservices
Liberty, Spring Cloud, Other Programming Models, DevOps

Evolution to Cloud-based Application

Base Virtualization with Standardization & Automation

- Cloud native
- Loosely-Coupled
- 12-factor
- Horizontal Scaling
- Eventually consistent
- Microservices
- Auto-scaling
- DevOps & CI
- Self-recovering

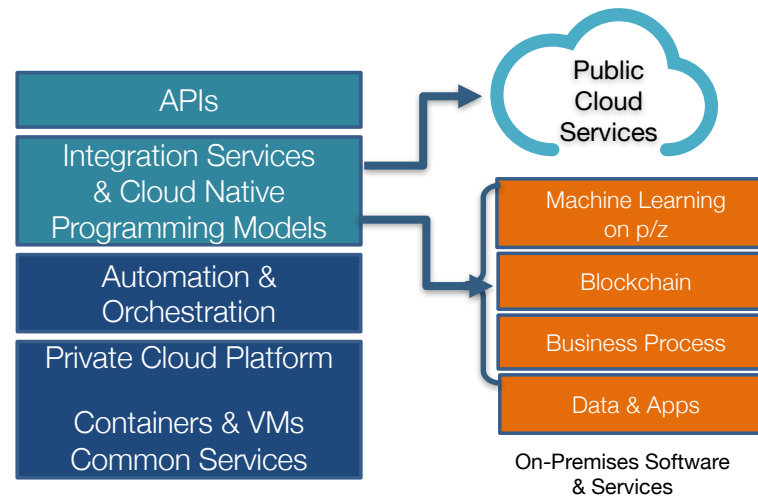**VMs I Containers I Cloud Foundry**

On-premises I Off-premises

Workload Use Cases driving Private Cloud Adoption

1. Optimize legacy apps with cloud

| Self-service Experience |
| Next Generation Middleware, Data & Analytics |
| Automation & Orchestration |
| Private Cloud Platform |
| Containers & VMs Common Services |

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Cloud-enabled middleware

2. Open your datacenter to work with cloud services

| APIs |
| Integration Services & Cloud Native Programming Models |
| Automation & Orchestration |
| Private Cloud Platform |
| Containers & VMs Common Services |

Public Cloud Services

| Machine Learning on p/z |
| Blockchain |
| Business Process |
| Data & Apps |

On-Premises Software & Services

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Integration & Hybrid Cloud

3. Create new cloud native applications

| New Applications |
| Cloud Native Services & Runtimes |
| Automation & Orchestration |
| Private Cloud Platform |
| Containers & VMs Common Services |

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New Applications

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Choice of Deployment & Tenancy - Locality

1 | Bluemix Public

Multi-Tenant on IBM Cloud

Shared Infrastructure, Runtimes & Services

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2 | Bluemix Dedicated
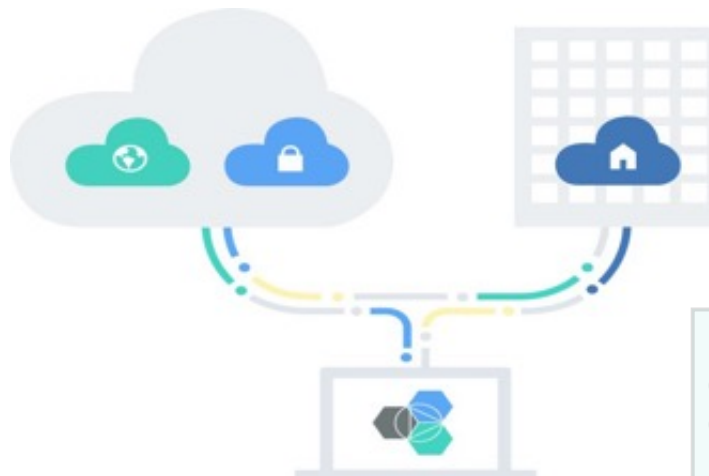
Single-Tenant on IBM Cloud

Virtually isolated Infrastructure & Runtimes
Dedicated, Shared & Isolated Services

3 | IBM Cloud private

Single-Tenant on Premises Infrastructure, Runtimes & Services

Subset of public cloud services. Integration with on-premises software & services

Enabled for Hybrid
Consistent runtimes
Common core services
Integrated

Customer Hills

Todd, an IT Operations/Cloud Admin can setup a modern, flexible, and compliant private cloud on enterprise infrastructure that is ready for Jane to use in **4 hours (Prod) and 2 hours (POC)**.

Todd

Jane, an Enterprise Developer and her team, can create 12 factor microservices with supporting manageability (config, logs aggregation, monitoring, service mesh, continuous delivery) **in 1 day**.
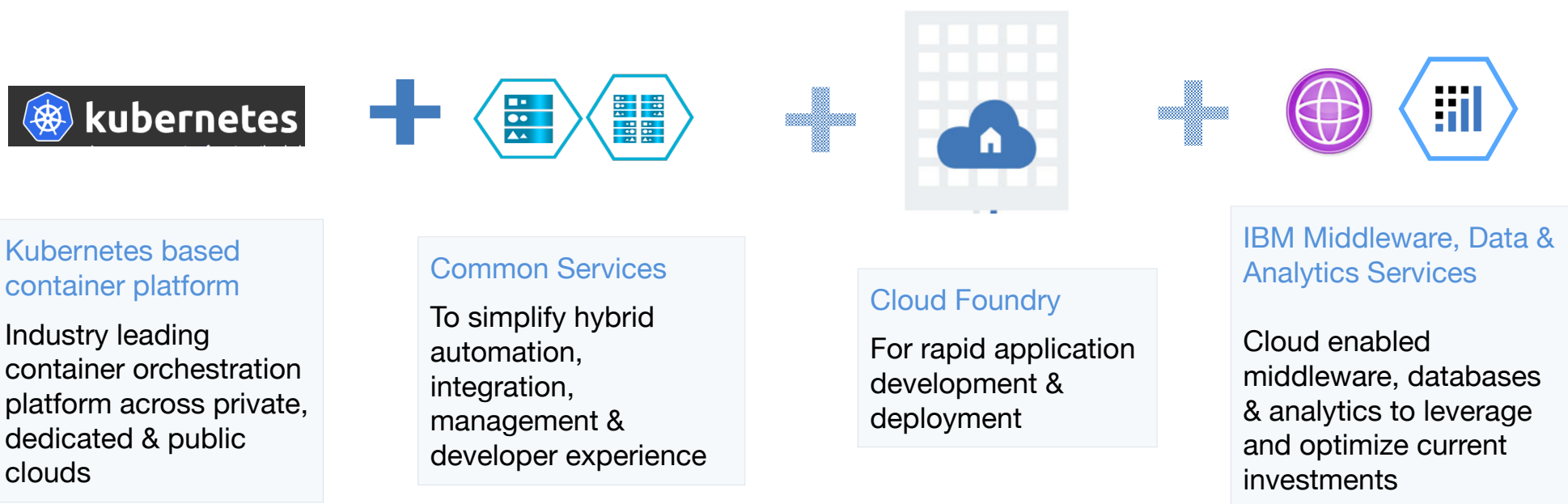
Jane, an Enterprise Developer can move an existing enterprise application to the private cloud to optimize cost, cycle times, and service levels of existing workloads **in half the time**.

Jane

Jane can create a 12-factor microservices which consumes API from existing systems using an API management system **in 3 days**.

IBM Private Cloud Components

Kubernetes based container platform

Industry leading container orchestration platform across private, dedicated & public clouds

Common Services

To simplify hybrid automation, integration, management & developer experience

Cloud Foundry

For rapid application development & deployment

IBM Middleware, Data & Analytics Services

Cloud enabled middleware, databases & analytics to leverage and optimize current investments
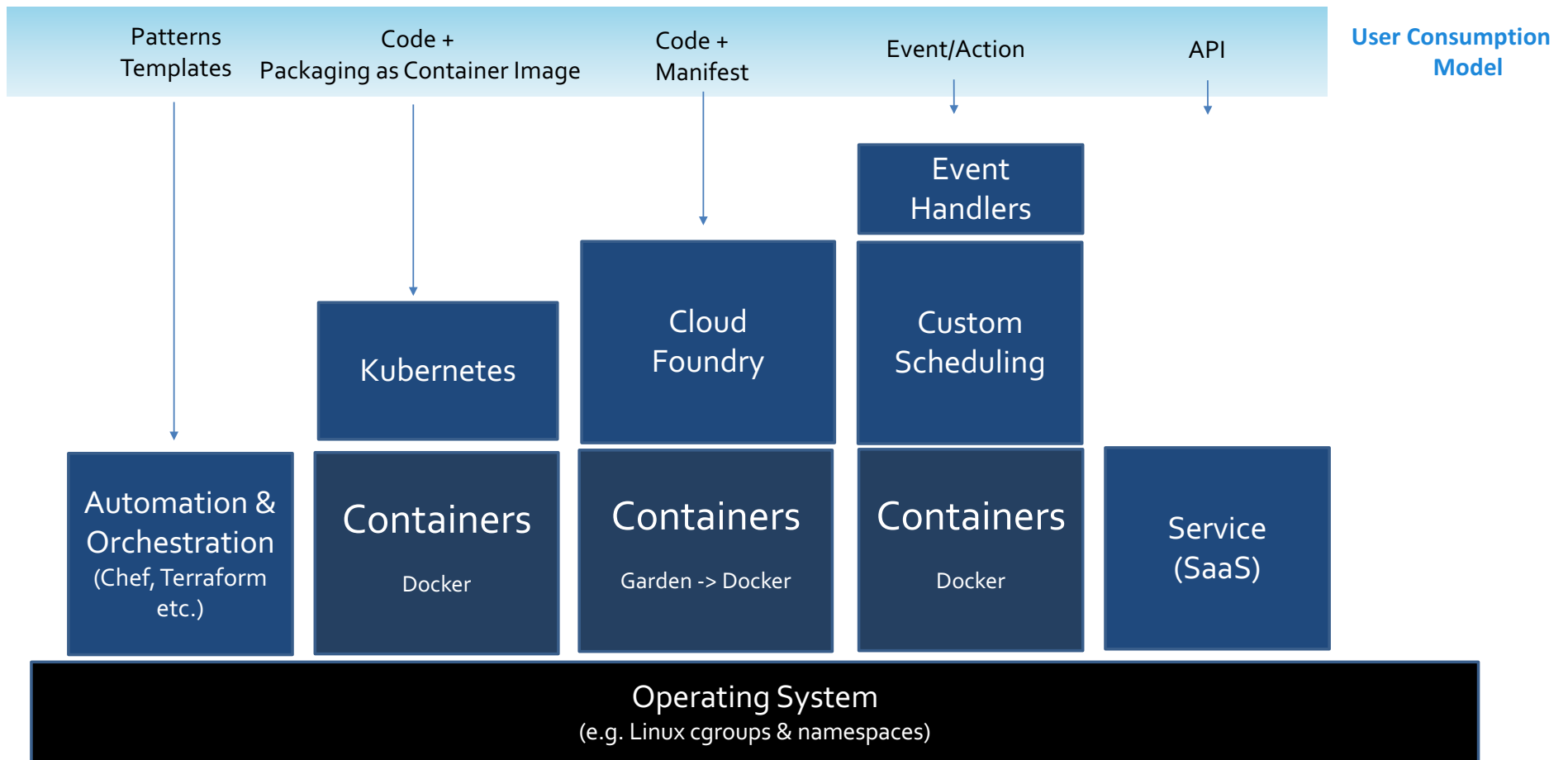
With flexible infrastructure support and reduced footprint options: *OpenStack or VMware*

With flexible management options: *Managed by customer to Managed by IBM Cloud*

Choice with consistency - Runtimes

| Patterns Templates | Code + Packaging as Container Image | Code + Manifest | Event/Action | API | **User Consumption Model** |

Event Handlers

Kubernetes

Cloud Foundry

Custom Scheduling

| Automation & Orchestration (Chef, Terraform etc.) | Containers Docker | Containers Garden -> Docker | Containers Docker | Service (SaaS) |

Operating System
(e.g. Linux cgroups & namespaces)

Container Orchestration with Kubernetes

- **Kubernetes has a clear governance model** managed by the Linux Foundation. Google is actively driving the product features and roadmap, while allowing the rest of the ecosystem to participate.

- **A growing and vibrant Kubernetes ecosystem** provides confidence to enterprises about its long-term viability. IBM, Huawei, Intel, and Red Hat are some of the companies making prominent contributions to the project.

- **The commercial viability of Kubernetes makes it an interesting choice for vendors.** We expect to see new offerings announced over the next several months.

- **Despite the expected growth in commercial distributions, Kubernetes avoids dependency and vendor lock-in** through active community participation and ecosystem support.

- **Kubernetes supports a wide range of deployment options.** Customers can choose between bare metal, virtualization, private, public, and hybrid cloud deployments. It enjoys a wide range of delivery models across on-premises and cloud-based services.

- **The design of Kubernetes is more operations-centric** than developer-orientated, which makes it the first choice of DevOps teams.

The best things about IBM Cloud Private (for now…)

Consistency between IBM Cloud public and private

Prebuilt content for IBM middleware and data / analytics portfolio

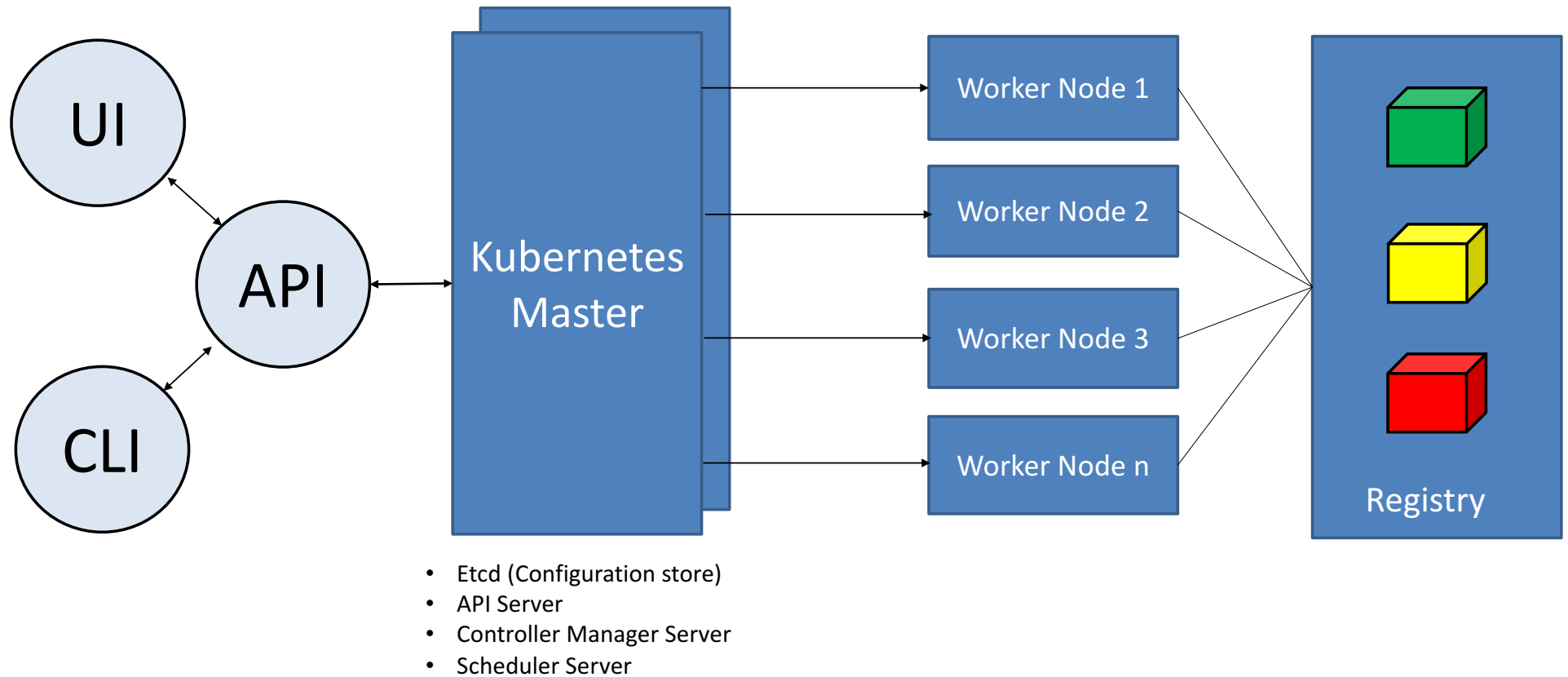Ability to manage VM environments, containers and cloud foundry

IBM API Connect: gateway broker's external access to services running in ICp

Micro-services builder

Bundles based pricing
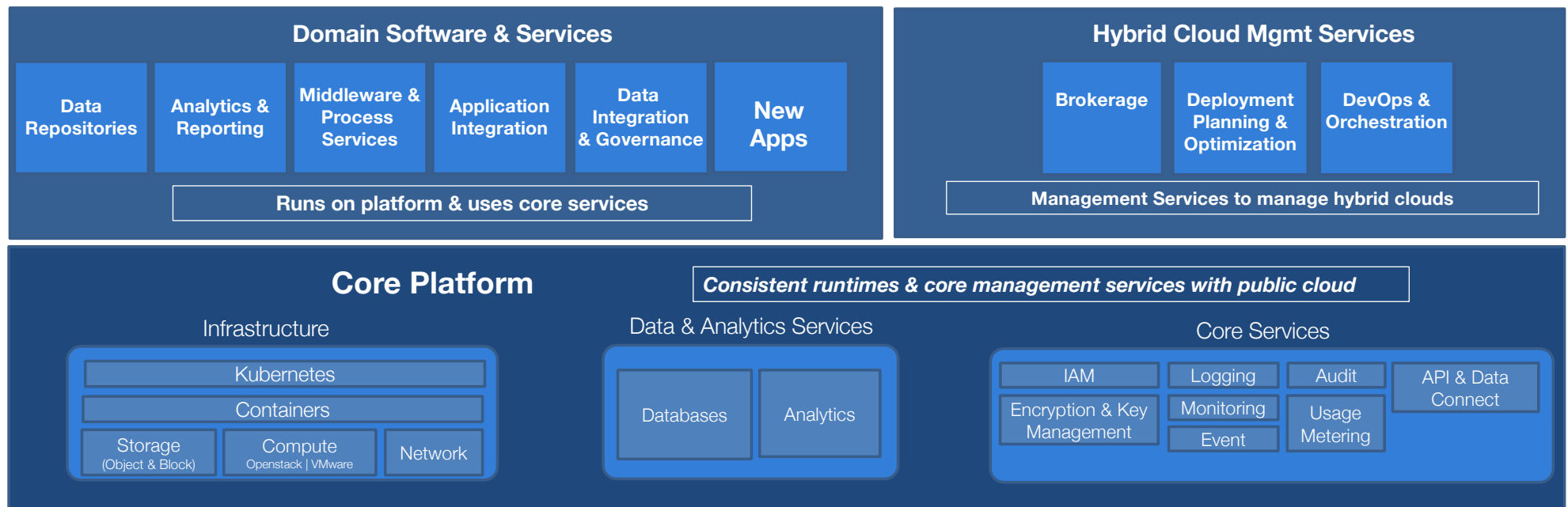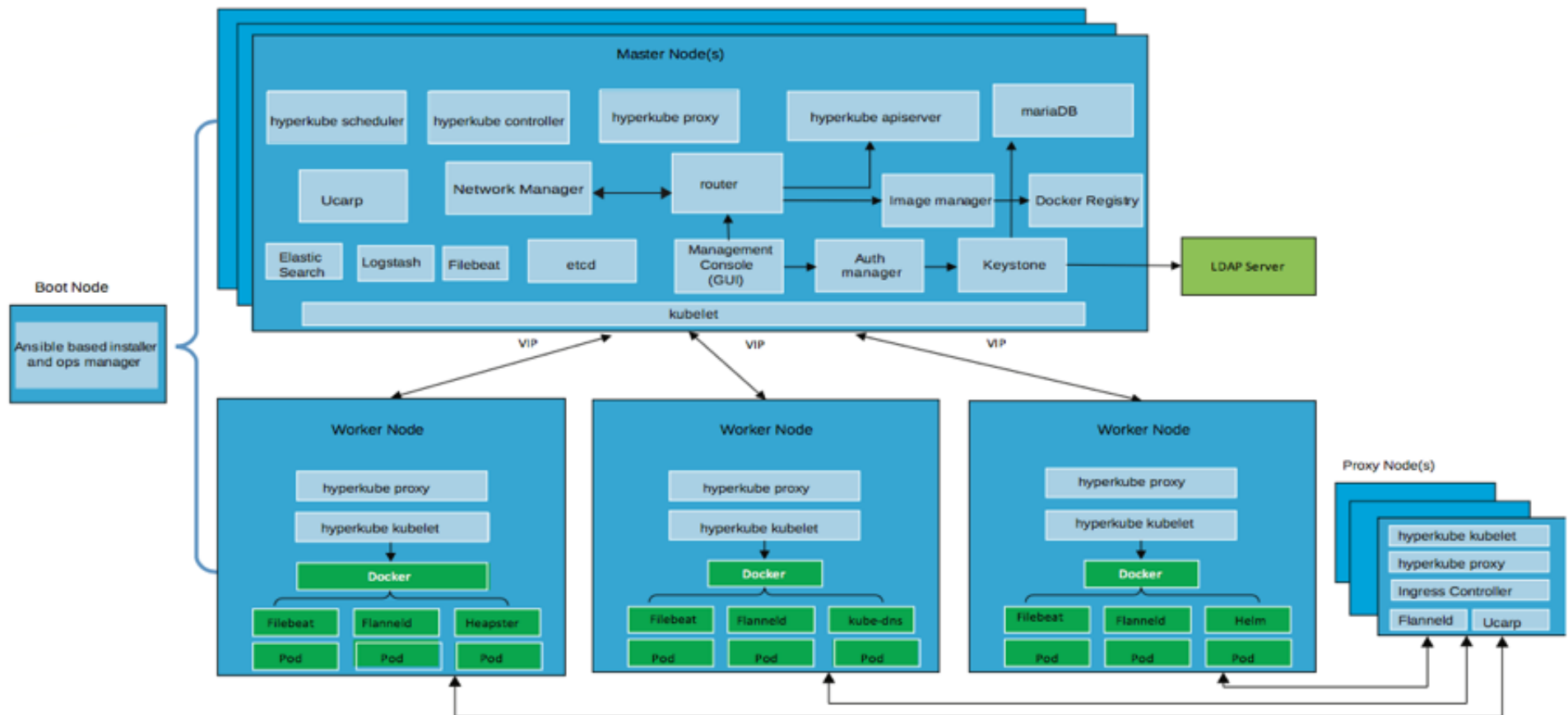
Vulnerability advisor

Kubernetes Architecture

UI

API

CLI

Kubernetes Master

Worker Node 1

Worker Node 2

Worker Node 3

Worker Node n

Registry

- Etcd (Configuration store)
- API Server
- Controller Manager Server
- Scheduler Server

Architecture

Small squads, across several business units, focused on agile execution and delivered on June 27th

- Core platform development from the Spectrum, Cloud Private, and Power teams
- Delivery of data and middleware services from the Hybrid cloud team
- Cloud professional services created training and application development offerings; GTS will offer management services (optional)
- OM, Sales, Sales ops, Pricing, licensing, RFA writing, and New product creation teams executed rapidly to deliver the product

Domain Software & Services

Data Repositories	Analytics & Reporting	Middleware & Process Services	Application Integration	Data Integration & Governance	New Apps

Runs on platform & uses core services

Hybrid Cloud Mgmt Services

Brokerage	Deployment Planning & Optimization	DevOps & Orchestration

Management Services to manage hybrid clouds

Core Platform

Consistent runtimes & core management services with public cloud

Infrastructure

- Kubernetes
- Containers
- Storage (Object & Block)
- Compute Openstack | VMware
- Network

Data & Analytics Services

- Databases
- Analytics

Core Services

IAM	Logging	Audit	API & Data Connect
Encryption & Key Management	Monitoring	Usage Metering	
	Event		

Detailed View of a Kubernetes-based 'Platform'

End-to-End Hybrid Architecture