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Mr. Alex Mutthu (501401)

Mr. Jayant Bhopale (501406)

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Introduction

Joyent Inc is a software and services company based in San Francisco, California. The company specializes in application virtualization and cloud computing. The company was acquired by Samsung.

Joyent PaaS - Businesses can develop applications on the Joyent Smart Platform and quickly deploy them on the Joyent cloud.

Joyent IaaS - Joyent delivers public, private, or virtual private infrastructures for any sized business across multiple data centers.

ARCHITECTURE

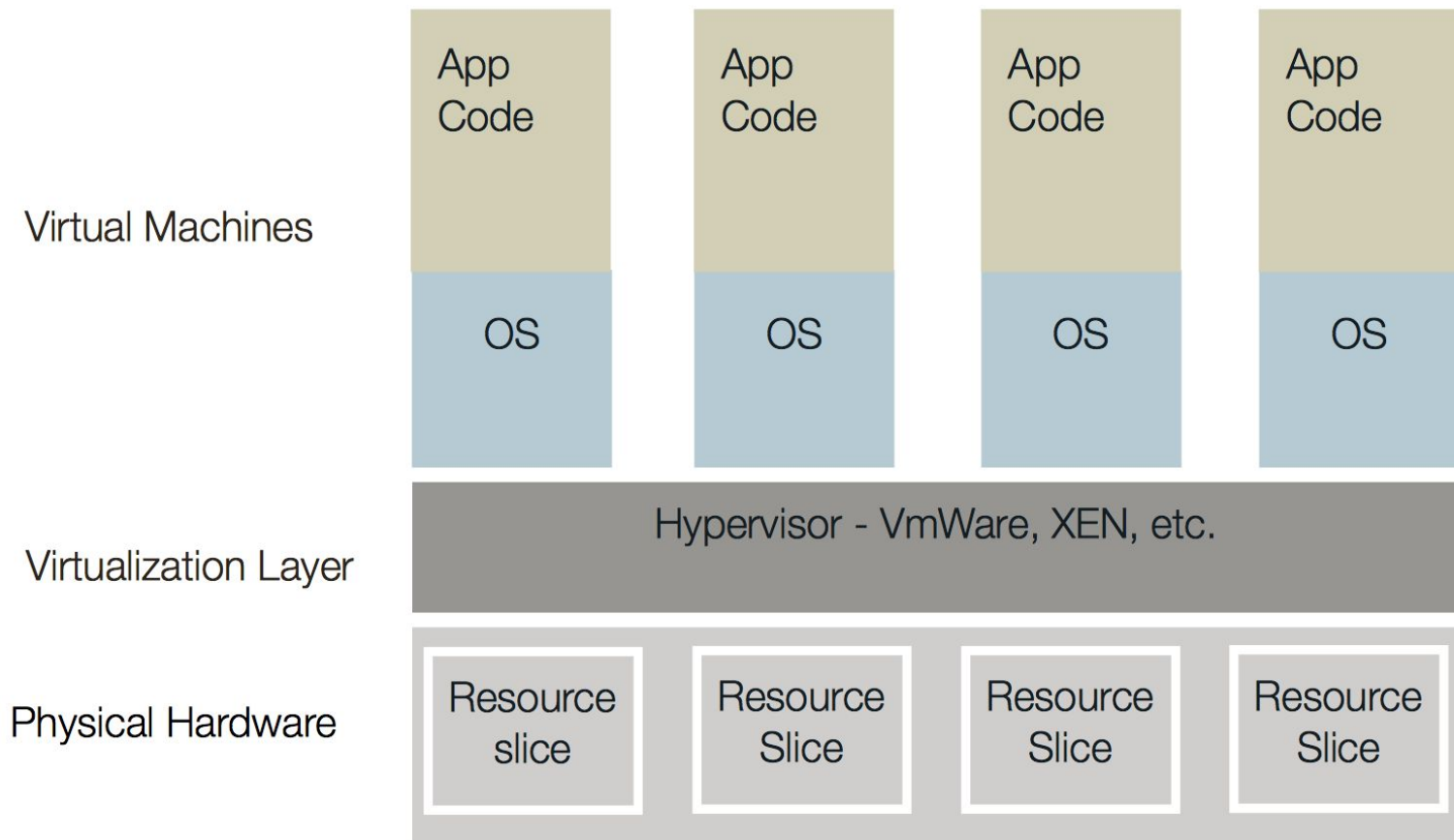
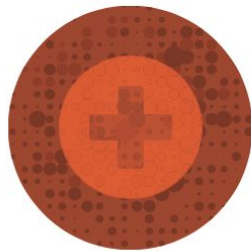


Figure 1. Architecture of traditional virtualization with Virtual Machines



ARCHITECTURE



SmartMachines

Operating System +
Virtualization Layer

Physical Hardware

App
Code

App
Code

App
Code

App
Code

Joyent SmartOS

Resource Pool

Figure 1. Architecture of SmartMachine virtualization

Products



Joyent



SmartOS



NodeJS



- Node.js is an open-source, cross-platform JavaScript runtime environment for executing JavaScript code at server-side.
- Node.js aims to optimize throughput and scalability in Web applications with many input/ output operations, as well as for real-time Web applications.
- Corporate users of Node.js software include GoDaddy, IBM, LinkedIn, Microsoft, Netflix, PayPal, Rakuten, Walmart, Yahoo!, and Cisco Systems.

SmartOS



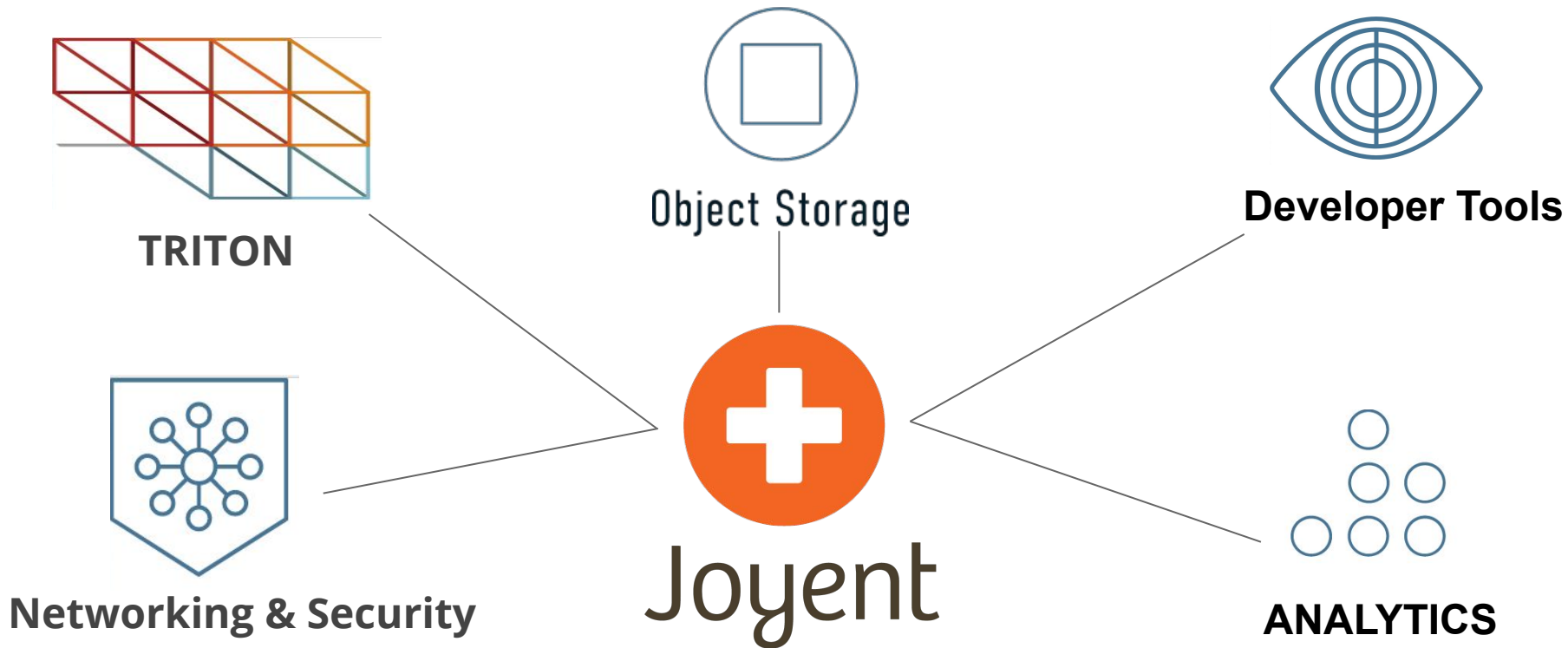
- Written in C.
- SmartOS is a free and open-source SVR4 hypervisor, based on the UNIX operating system that combines OpenSolaris technology with Linux's KVM virtualization.
- SmartOS is designed to be particularly suitable for building clouds and generating appliances.

SmartDC



- Triton DataCenter is a large and complex beast. Many of the components that make up Triton (REST APIs, repositories, agents, the SmartOS platform, important libraries)
- SmartDataCenter (SDC) is designed with a very specific vision of how a data center should be organized.

Services



Triton

Triton Compute Service allows you to securely deploy and operate containers with bare metal speed on the world's only container-native public cloud.

- Performance and scale
- Simple management
- Security
- Software defined networking
- Integrated debugging, logging and auditing
- Dynamic resource usage

Triton Means Big Savings

- Cloud runs on containers, while AWS's cloud runs on virtual machines.
- With Triton running containers natively on bare metal, you eliminate the need to pay for inefficient virtual machine hosts.

TRITON VS. AWS

⇒ Pricing

- $Aws > 2^* Joyent$
- The monthly cost of running on AWS is \$2,400 – almost twice the cost of running on Triton.

Instances	Containers	\$/Month
g4-highcpu-1G	Nginx	\$18.98
g4-highcpu-1G	Nginx	\$18.98
g4-general-4G	Wordpress	\$48.91
g4-general-4G	Wordpress	\$48.91
g4-general-4G	Wordpress	\$48.91
g4-general-4G	Memcached	\$48.91
g4-general-4G	Memcached	\$48.91
g4-general-4G	Memcached	\$48.91
g4-highram-16G	Percona	\$151.48
g4-highram-16G	Percona	\$151.48
g4-highram-16G	Percona	\$151.48
g4-bigdisk-32G	NFS	\$503.70
g4-highcpu-128M	Consul	\$2.19
g4-highcpu-128M	Consul	\$2.19
g4-highcpu-128M	Consul	\$2.19
Total		\$1,296.13

Object Storage

- Data Backup and Recovery
- Image and Video Processing
- Checksums for Data Integrity
- Big Data Mining and Analytics
- Data at scale for Modern Apps
- Content Storage & Distribution

Networking & Security

- Cloud networking & security
 - Firewalls, gateways, container dns, etc.
- Security compliance
 - Certification
- Load balancing
 - S/W load balancing and reverse proxy.

Developer Tools

- Dtrace
 - Live debugging & production
- Container Pilot
 - Application orchestration

Advantages-

- Elasticsearch clusters on Triton complete query requests **50% to 70% faster** than comparable Elasticsearch clusters running identical data sets on AWS.
- Sharded MongoDB clusters on Triton complete tasks **100% to 150%** faster than comparable MongoDB clusters running on AWS.
- Standard primary/replica Postgres configurations on Triton complete tasks **up to 200% faster** than on comparable Postgres multi-node virtualized database configurations running on AWS.

References-

1. <https://docs.joyent.com/public-cloud>
2. <https://www.slideshare.net/dmasciorini/joyent-cloud-advantages>
3. <https://en.wikipedia.org/wiki/Joyent>
4. <https://www.joyent.com/blog/container-native-means-big-savings>