

What's Next for SUSE SDI Customers?

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SUSE Next-Gen SDI

1. SUSE's direction
2. SDI compute market segments
3. Targeting the market segments
4. Next-gen SDI in depth



A Shift In Focus

“SUSE is focusing and increasing our strategic investments on the application delivery market and its opportunities in order to align with technology trends in the industry and, most important, with our customers’ needs. These adjustments will allow SUSE to better align resources with our customer needs, strategic direction and market opportunities. This additional focus will fuel SUSE’s momentum as a forward-looking, independent open-source company with exciting objectives for growth and innovation.”

Michael Miller, President of Corporate Development and Strategic Alliances – October 2019



SUSE's Direction

- Focus on the application delivery* market
- Align with technology trends
- Align with customer needs
- Forward-looking, independent open-source company, grow and innovate

* - since renamed to Container and Application Platforms



Direction – Focus On Container And Application Platforms Market

- SUSE's application delivery offerings comprise SUSE Cloud Application Platform and SUSE CaaS Platform
- SUSE's Cloud Application Platform integrates Cloud Foundry and Kubernetes in a full-service PaaS offering
- SUSE CaaS Platform delivers a best-of-breed Kubernetes offering

Conclusion

- ✓ Kubernetes is the preferred next-gen SDI foundation in SUSE's application delivery portfolio

Direction – Align With Technology Trends – 1 of 2

- 92% of businesses use virtualization today; less than 20% used containers in 2019^[1]
- More than 70% of businesses projected to use containers by 2023^[1]
- Top technology/focus of OpenStack users (70%) is containers^[2]
- Virtualization and container platform market leaders moving dual-mode (vm and container)
- Kubernetes adoption in the container orchestration market stands at 86%^[3]
- Kubernetes users run a mix of on-premise (64%), private cloud (50%) and public cloud (77%)^[4]
- The largest block of Kubernetes users run 2-5 clusters (as opposed to single or >5)^[4]

Direction – Align With Technology Trends – 2 of 2

Conclusions

- ✓ Kubernetes is the preferred industry solution for container-based SDI
- ✓ Kubernetes is in or entering its hyperbolic growth phase
- ✓ IT shops need virtualization today and less tomorrow as containers become the predominant SDI compute technology
- ✓ IT shops will deploy in multiple environments
- ✓ A converged container/virtualization solution is becoming table stakes



Direction – Align With Customer Needs

- In a market-driven economy, technology trends very strongly mirror customer needs
- In a highly-connected environment (i.e. Dr. Search Engine), customer needs and technology trends tend to form a positive feedback loop

Conclusions

- ✓ Same conclusions as for technology trends

Direction – Forward-looking, Independent, Open

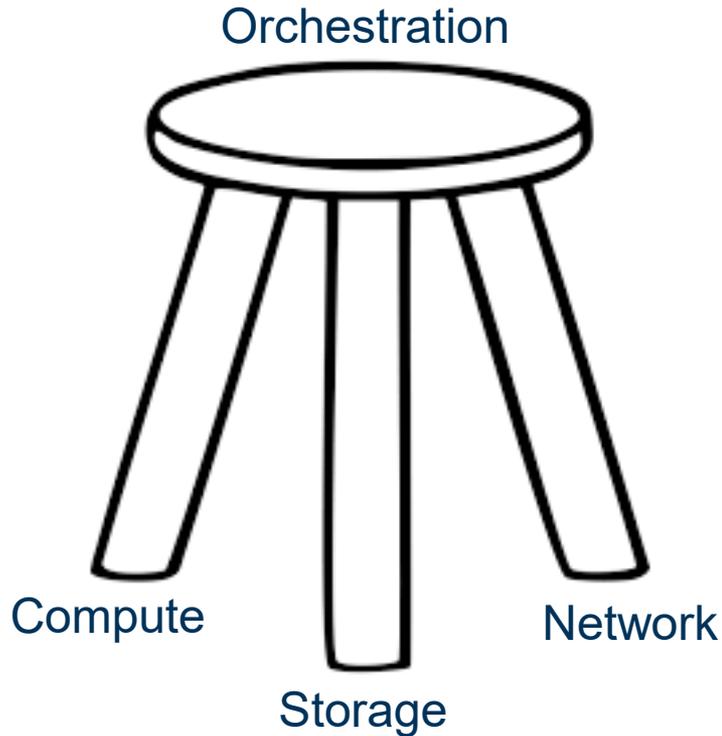
- In a nutshell, this is who SUSE is – the largest independent open-source company in the world
- We are forward-looking and focused



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SDI Defined



SDI is a three-legged software stool...

- One leg is compute
- One leg is storage
- One leg is network
- The seat is the orchestration layer which is both supported by and also connects all the legs
- When fully assembled, you have a solid tool



SDI Compute Market Segments

- OpenStack/laaS Proponents
- Virtualization Users
- Container-Curious
- Container-Focused

Segment – OpenStack/IaaS Proponents

Typical Workloads

- Primarily legacy workloads
- Monolithic
- Client-server
- Web farms
- Some disposable (cattle) VMs

Driving Features

- Use of the full and rich API to orchestrate workloads

Market Share Size/Trends

- OpenStack/IaaS < 20% of total SDI compute market
- Large upstream developer migration to Kubernetes community

Segment – Virtualization Users

Typical Workloads

- Primarily legacy workloads
- Monolithic
- Client-server
- Web farms
- Some Telco/NFV

Driving Features

- Stability
- Longevity

Market Share Size/Trends

- 92% of businesses are virtualization users
- Virtualization ISV market leaders placing heavy focus on Kubernetes compatibility/support
- Almost every survey shows virtualization users becoming container-curious (70% of OpenStack users)

Segment – Container-Curious

Typical Workloads

- Primarily legacy workloads
- Experimenting with 12-factor* apps

Driving Features

- Ability to continue running the legacy apps that pay the bills
- Enable phased migration from legacy/VM apps to 12-factor/containerized

* Explained later in presentation; for now assume 12-factor == cloud native

Market Share Size/Trends

- 92% of businesses are virtualization users; <20% container users in 2019 migrating to 70% by 2023
- Virtualization ISV market leaders placing heavy focus on Kubernetes compatibility/support
- Vast majority of surveys shows virtualization users migrating to container-curious

Segment – Container-Focused

Typical Workloads

- 12-factor apps

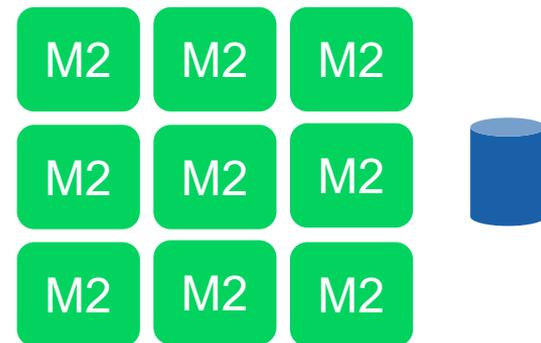
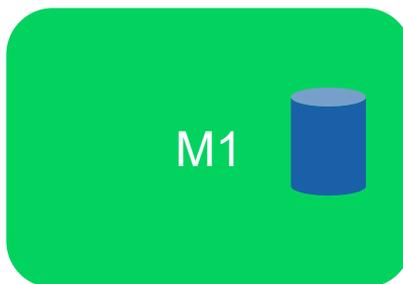
Driving Features

- Most likely a newish development shop building new applications and went straight 12-factor

Market Share Size/Trends

- <20% container users in 2019 migrating to 70% by 2023
- More and more application development will be straight 12-factor
- This is the driving preference of CNCF, the foundation that “owns” Kubernetes

A Quick Glimpse Into A Container-Curious Path...



Telco Appliance

- Often x64-based
- Often Linux-based
- *ASICs and FPGAs*
- Stateful, monolithic, long-running

Mode 1 Application

- Migrated code base
- Stateful
- Monolithic
- Long-running
- State of the Union

Mode 2 Application

- Redesigned code base
- “Stateless”
- Scale-out
- Possibly long-running but generally not
- Coming Soon to a Theater Near You

12-Factor – A Better Definition Of Cloud Native

I. Codebase

One codebase tracked in revision control, many deploys

II. Dependencies

Explicitly declare and isolate dependencies

III. Config

Store config in the environment

IV. Backing services

Treat backing services as attached resources

V. Build, release, run

Strictly separate build and run stages

VI. Processes

Execute the app as one or more stateless processes

VII. Port binding

Export services via port binding

VIII. Concurrency

Scale out via the process model

IX. Disposability

Maximize robustness with fast startup and graceful shutdown

X. Dev/prod parity

Keep development, staging, and production as similar as possible

XI. Logs

Treat logs as event streams

XII. Admin processes

Run admin/management tasks as one-off processes

Let's Clear The Terminology Mud

Mode 1/Mode 2

- Mode 1 generally applies to legacy applications, stateful, usually hosted in a VM but can run in a container
- Mode 2 generally is a cloud-native, stateless app, usually containerized but can run elsewhere

Cloud Native

- Used by OpenStack before Kubernetes, tends to imply a stateless, scale-out application, usually containerized. Cloud Native Computing Foundation has wisely and somewhat preemptively “adopted” the term

Stateful/Stateless

- Stateless is a single feature of a good 12-factor application. Stateful usually refers to a legacy application

12-Factor

- Refer to the prior slide which contains twelve features a good stateless, scale-out application will have. Originally from Heroku

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Targeting The Market Segments

- ✘ OpenStack/laaS Proponents (Proportionally small market, OpenStack APIs complex)
- ✓ Virtualization Users (SUSE CaaS Platform plus KubeVirt {or SUSE Manager})
- ✓ Container-Curious (SUSE CaaS Platform plus KubeVirt)
- ✓ Container-Focused (SUSE CaaS Platform)

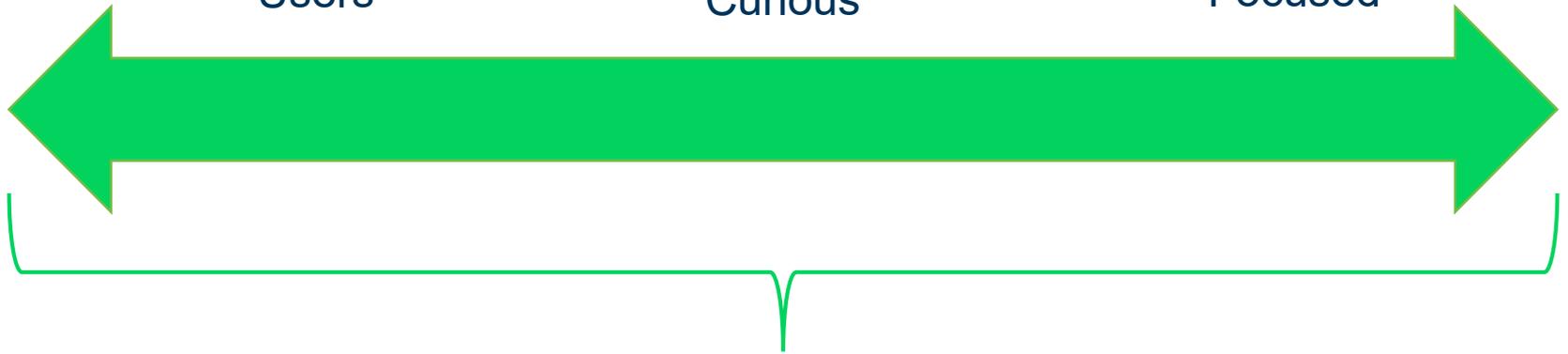
Goal – Phased Transitions At Your Pace

(Or Just Plant Yourself In One Spot)

Virtualization
Users

Container
Curious

Container
Focused



SUSE CaaS Platform w/ KubeVirt

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SUSE Next-gen SDI (1 of 3)

SUSE CaaS Platform Based

- Kubernetes has industry mind and market share, has a solid and growing API, and SUSE has an established product here

Upstream/Community Focus

- Leverage open source benefits
- Grow upstream SUSE presence
- Maximize content of upstream source (minimize volumes of highly SUSE-specific code, even if open sourced)

SUSE Next-gen SDI (2 of 3)

Container and VM orchestration

- Ability to manage both containers and virtual machines as equal citizens from the Kubernetes control plane via API, CLI, and UI. Our current target is KubeVirt

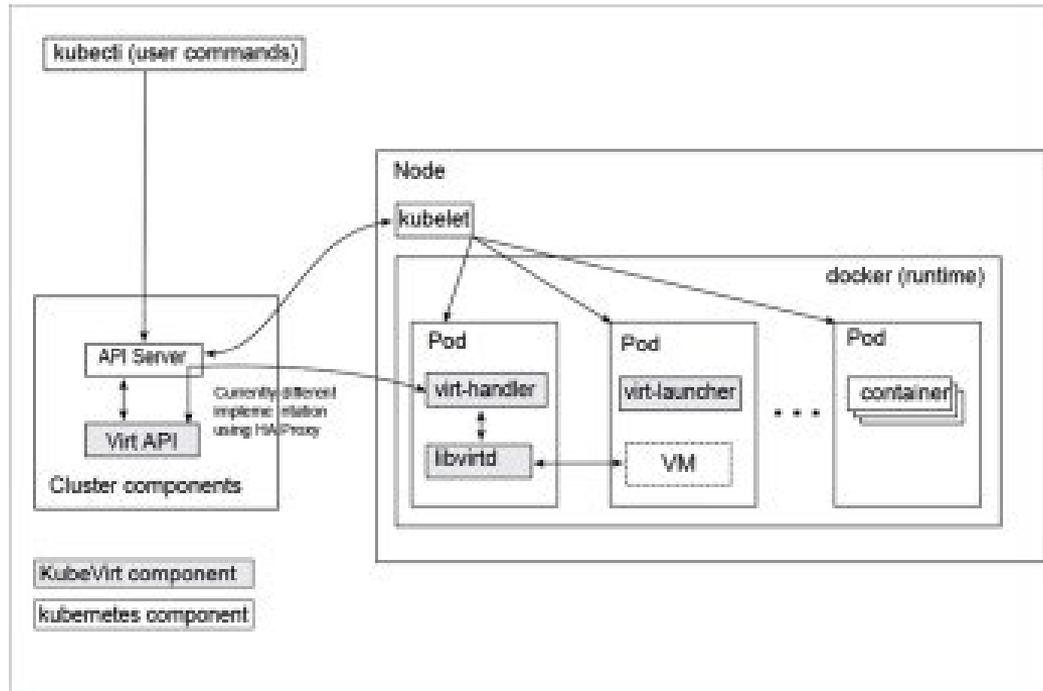
Identity Management

- Ability to authenticate using configurable identity providers like LDAP, SAML, etc.

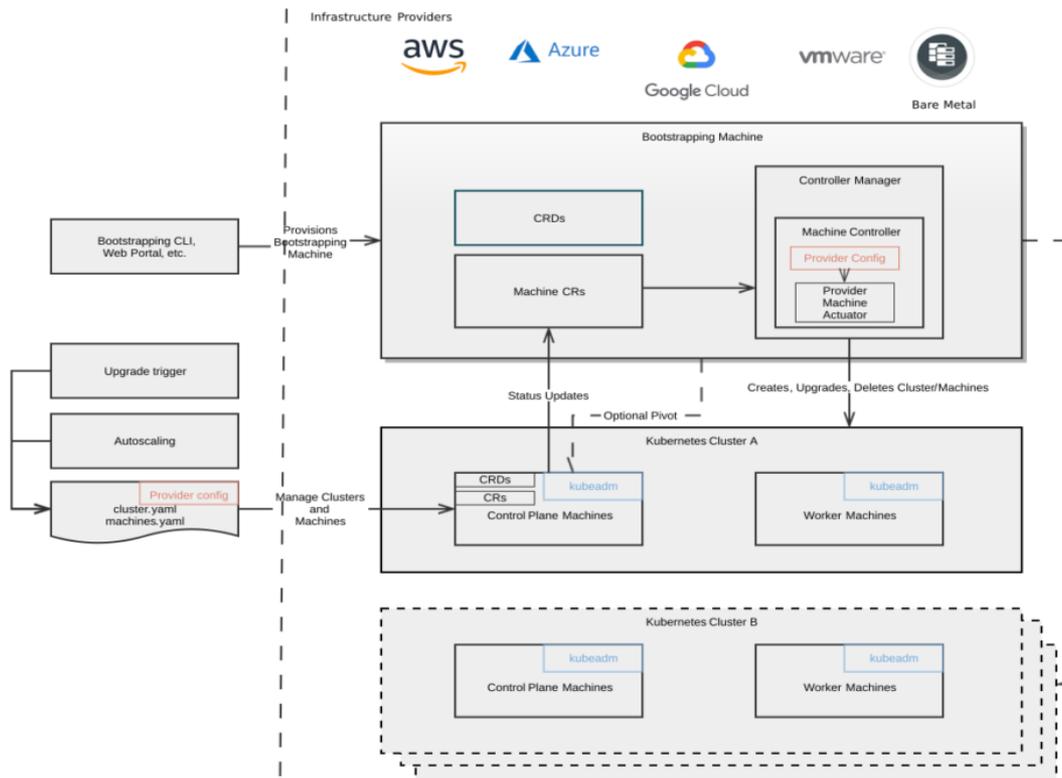
Flexible Deployments

- Installation based on Cluster API and providers allowing consistent installation methodology on environments ranging from on-premise bare metal (Metal³) to on-premise IaaS or VMware to public cloud (e.g. GCE) and managed Kubernetes (e.g. GKE)

KubeVirt Architecture



ClusterAPI Architecture



SUSE Next-gen SDI (3 of 3)

Multi-tenancy

- Leverage built-in K8s functionality (RBAC, Pod Security Policies, Namespaces, Network policies, Resource quotas) to provide multiple virtual clusters (tenants) on a single base Kubernetes cluster
- Provide configurable levels of isolation of tenants using a set of SUSE-provided K8s objects and Open Policy Agent (CNCF project)
 - Stronger than default Kubernetes multi-tenancy in that a top-level cluster API attack should not provide access to other tenants' namespaces/clusters
 - Flexible workload assignment allowing tenant-specific assignment of workloads to tenant-specific nodes
- Major SUSE value-add is a simple/default set of isolation policies in addition to an easy-to-use policy editor/manager

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References

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