



STLLUG

~~November 2019~~

~~December 2019~~

January 2020

SUSE, Enterprise Storage (SHHHHHHHH it's this really cool thing called ceph)

Michael Carrington, Engineer

Agenda

- **Introductions**
- **Recent News at SUSE**
- **SUSE – Linux - reliability for enterprise**
- **SUSE – Storage**
 - **Architecture**
 - **More than cephfs**

Recent News at SUSE

**SUSE was acquired by investment firm EQT
Turned private March 2019**

Recent News at SUSE...

Yes Thomas, making SUSE.....

mcarrington@mcsuse03:/tmp/stllug

×

```
mcarrington@mcsuse03:~> cd /tmp/stllug/  
mcarrington@mcsuse03:/tmp/stllug> ...  
mcarrington@mcsuse03:/> alias stllug="cd /tmp/stllug/"  
mcarrington@mcsuse03:/> stllug  
mcarrington@mcsuse03:/tmp/stllug> ls  
imsorry.txt  nov162020.cal  
mcarrington@mcsuse03:/tmp/stllug>
```

```
mcarrington@mcsuse03:/tmp/stllug> cat imsorry.txt
```

```
So, I owe you an apology.
```

```
See, I said my slides were borning and I'm used to CLI,  
but now LINUX has a GUI and stuff!!!
```

```
So the next slides are all pretty and well done... <whew>
```

```
I guess I'm going to try to tell a story with them, so here it goes
```

```
mcarrington@mcsuse03:/tmp/stllug> █
```

Benefits for SUSE Partnering with EQT



Direct Control & Accountability for All Aspects of the Business

- We can further develop our approach to an open, open source development and business model, building on our unique culture as we expand the organization across all functions.
- We can increase agility, adaptability and strengthen strategic execution.

Acceleration and Momentum

- Investment will enable continued growth and innovation and will fuel the build and buy strategy needed to meet the market needs for enterprise-grade, software-defined infrastructure and application delivery solutions.
- The timing of this increased support is ideal, as our customers and partners increase their focus on open source technologies and solutions to transform their businesses.

Continuity and Stability

- Continuation of our growth charter and strategic direction.
- A stable leadership team focused on securing long-term profitable growth, combined with a clear and sharp focus on customer and partner success.
- We will continue to operate as an open source company, committed to the truly open, open source development and business model that is embedded in our culture and has been a key to our success.

SUSE and EQT

Developing Companies Across the Globe

- EQT invests into successful, midmarket businesses around the globe with a mission to help them develop into great and sustainable companies.
- During EQT's ownership, number of employees increased on average by 10%, sales by 10% and EBITDA by 11% each year.
- Will support the SUSE build and buy strategy with funding and industrial expertise.

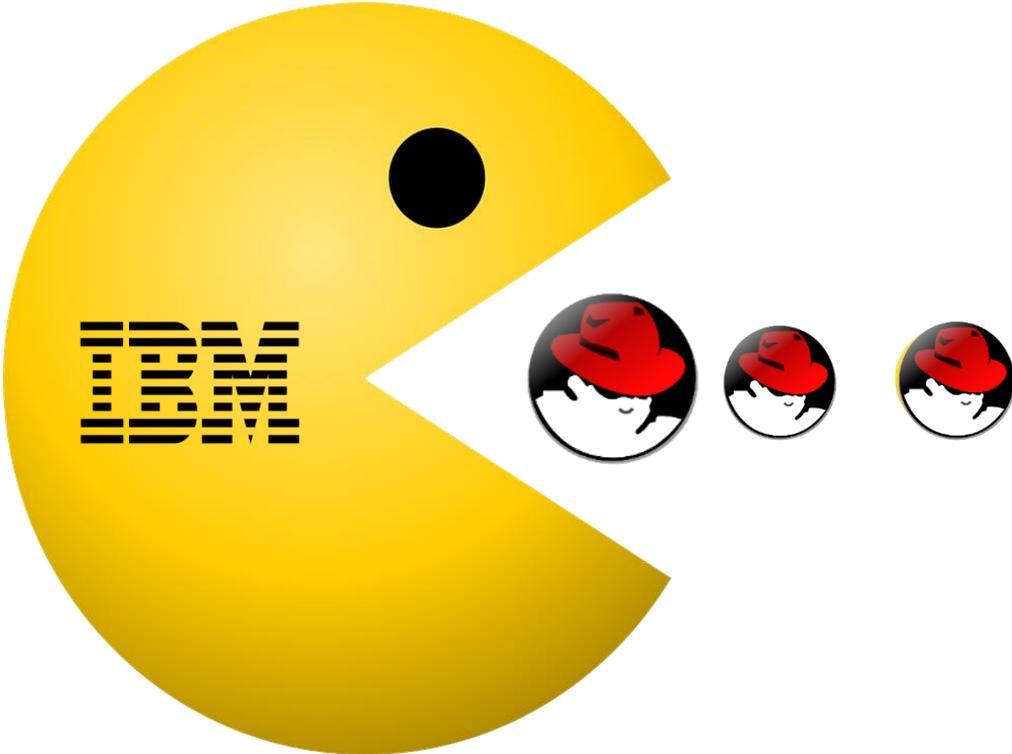
What EQT is Saying About SUSE

“We were impressed by SUSE’s strong performance over the last years as well as by its strong culture and heritage as a pioneer in the open source space. These characteristics correspond well to EQT’s DNA of supporting and building strong and resilient companies, and driving growth.” — *Johannes Reichel, Partner at EQT*



www.eqtpartners.com

IBM buys RedHat for \$34B



What does this mean?

You tell me...

SUSE

SUSE at a Glance



SUSE at a Glance

25+

Years of
Open Source
Engineering
Experience

50%+

Development
Engineers

1st

Enterprise
Linux
Distribution

10

Awards in 2016
for SUSE
Enterprise Storage

1st

Enterprise
OpenStack
Distribution



2/3+

of the Fortune Global
100 use SUSE Linux
Enterprise

+8%

Higher growth
for SUSE Linux
vs. other Linux
in 2016
(source IDC)

\$2.5B

EQT
Buyout FY19

Where SUSE Leads

15+ 

Mainframe Linux

Over 15 years of mainframe Linux market share leadership

4/5 

Linux in Finance

4 out of 5 of the world's largest banks use SUSE Linux Enterprise

70% 

SAP on Linux

70% of all SAP applications running on Linux run on SUSE

80% 

Linux in Large Enterprise

Over 80% of the Fortune Global 50 are active SUSE Customers

9/10 

Linux in Aerospace

9 out of 10 of the largest aerospace companies rely on SUSE

x10 

Linux in Telecom

10 of the largest telecommunications carriers rely on SUSE

7/10 

Linux in Pharma

7 out of 10 of the largest pharmaceutical companies use SUSE Linux Enterprise

7/10 

Linux in Retail

7 out of 10 of the largest retailers in the U.S. are active SUSE customers

x10 

Linux in Automotive

10 of the largest global automobile mfgs. are active SUSE customers

50% 

Linux in HPC

Half of the world's 20 largest super computers run on SUSE

7/10 

Linux in Manufacturing

7 out of 10 world's largest manufacturers use SUSE Linux Enterprise

SUSE Delivers from Edge to Core to Cloud



Business-critical
Applications



Machine
Learning



Internet of
Things



Business
Analytics



High Performance
Computing



Traditional IT
& Applications

Application Delivery



Container Management
SUSE CaaS Platform



Platform as a Service
SUSE Cloud Application Platform

Software-defined Infrastructure



Private Cloud / IaaS
SUSE OpenStack Cloud



Compute
Virtual Machine
& Container



Storage
SUSE Enterprise
Storage



Networking
SDN and NFV



Public Cloud
SUSE Cloud
Service Provider
Program



Multimodal Operating System
SUSE Linux Enterprise Server

Physical Infrastructure: Multi-platform Servers, Switches, Storage



**Infrastructure
& Lifecycle
Management**

SUSE Manager



Services

SUSE Global
Services
Consulting
Services
Select Services
Premium Support
Services

Linux

SUSE Linux Enterprise 15 – Portfolio

Server and Desktop

- SUSE Linux Enterprise Server for SAP Applications
- SUSE Linux Enterprise Server for High Performance Computing
- SUSE Linux Enterprise Desktop
- SUSE Linux Enterprise Real Time
- SUSE Linux Enterprise Server with Expanded Support
- SUSE Linux Enterprise Point of Service

Server Extensions

- SUSE Linux Enterprise High Availability Extension and GEO clustering
- SUSE Linux Enterprise Live Patching
- SUSE Linux Enterprise Workstation Extension
- Long Term Service Pack Support
- SUSE Linux Enterprise Virtual Machine Driver Pack

Cloud, Storage and Management

- SUSE Enterprise Storage
- SUSE CaaS Platform
- SUSE Cloud Application Platform
- SUSE Manager

SUSE Linux Enterprise 15

SP1 Released June 24, 2019



Mediums/Channels

- Unified Installer
 - Off-line installation medium
 - On-line installation & update channels
- JeOS
- Containers
- Windows Subsystem for Linux (WSL)
- Quarterly Update to install media

Architectures

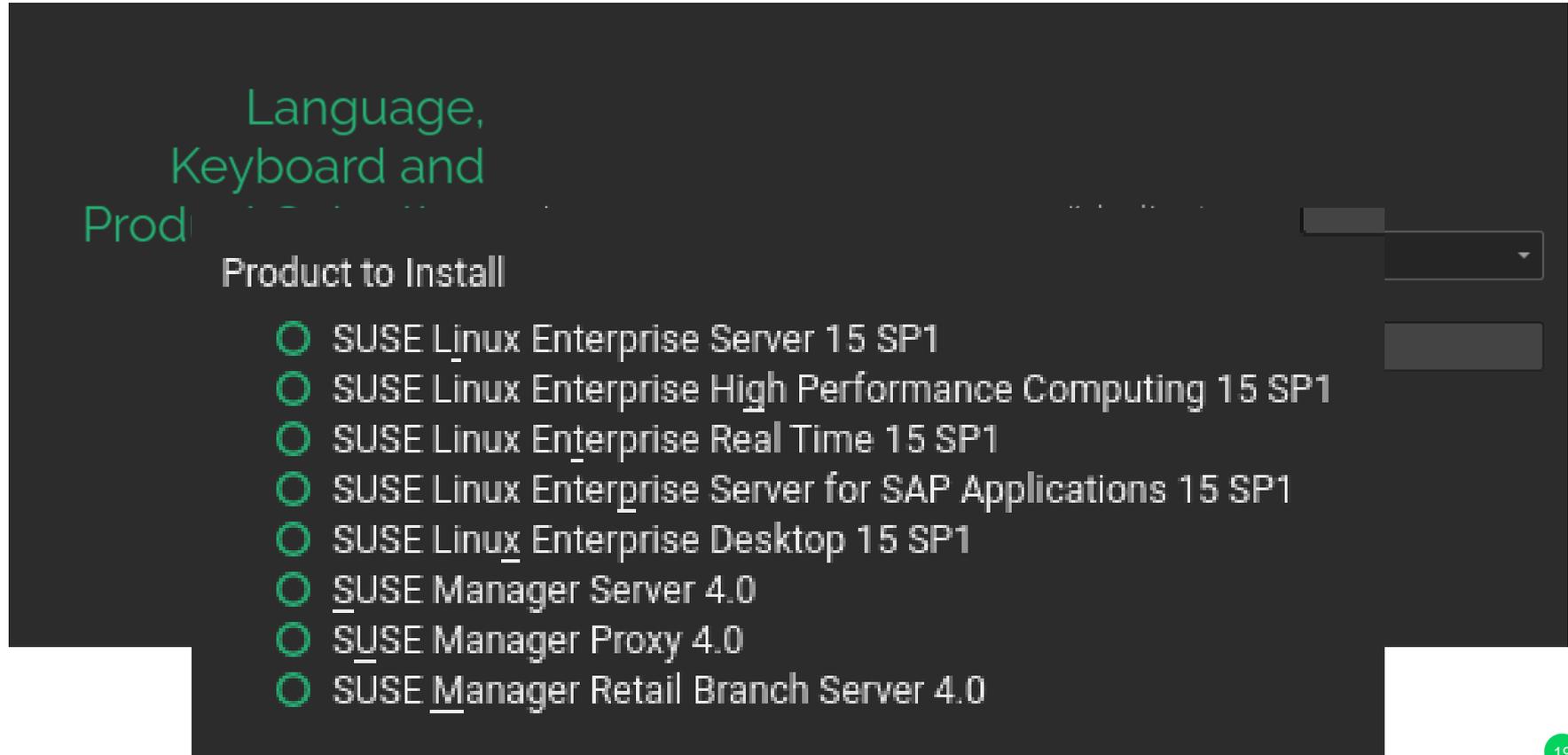
- X86-64
- Power LE
- System z
- ARM64

Target scenarios

- Physical
- Virtual host
- Virtual guest
- Container
- Public cloud

Microsoft Azure, Amazon EC2, Google Cloud, Oracle Cloud Infrastructure, Alibaba Cloud

SUSE Linux Enterprise 15 – Install Screen



Software Development

Developer Flexibility

- Move to production faster from developer setups
- Two options for a direct path to SUSE Linux Enterprise

Option 1

Community Linux
openSUSE Leap



SLE 15

Option 2

Free Developer
Subscription



SLE 15

Storage

The World is Changing

**29 Billion
Connected Devices**

are forecast by 2022

**18 Billion
will be Related to IoT**

including connected cars, machines, meters,
wearables and other consumer electronics*

93% of Data

will be Unstructured by 2022

A Data Explosion

Demand For Data Storage Will Outstrip Production



Real World Examples



Nearly half the US law enforcement agencies use body cams



26.66 billion sensors in 2019



Email users grow by more than 100 million per year

What You Have Today Can't Keep Up



**Difficult to Scale
and Manage
Data Growth**



Expensive



**Won't Extend to
the Software-defined
Data Center**



SUSE Storage Solutions

Our intelligent software-defined storage solutions enable you to transform your enterprise storage infrastructure to:

- **Manage data growth and complexity** with enterprise grade unified storage ensuring applications have access to storage they need, when and where they need it.
- **Reduce IT costs** by using commodity off-the-shelf servers and drives, in your data center or the cloud.
- **Seamlessly adapt to changing demands** by automatically optimizing storage when upgraded or added without disruption.

Real Success with SUSE Storage Solutions



SUSE: Underpinning Digital Transformation



Business-critical Applications



Machine Learning



Internet of Things



Business Analytics



High Performance Computing



Traditional IT & Applications

Application Delivery



Container Management

SUSE CaaS Platform



Platform as a Service

SUSE Cloud Application Platform

Software-defined Infrastructure



Private Cloud / IaaS

SUSE OpenStack Cloud



Compute

Virtual Machine & Container



Storage

SUSE Enterprise Storage



Networking

SDN and NFV



Multimodal Operating System

SUSE Linux Enterprise Server



Public Cloud

SUSE Cloud Service Provider Program

Physical Infrastructure: Multi-platform Servers, Switches, Storage



Infrastructure & Lifecycle Management

SUSE Manager



Services

SUSE Global Services

Consulting Services

Select Services

Premium Support Services

Open, Secure, Proven

SUSE Enterprise Storage



An intelligent software-defined storage solution, powered by Ceph technology, that enables IT to transform their enterprise storage infrastructure to deliver highly scalable and resilient storage that is cost-efficient and able to seamlessly adapt to changing business and data demands.



Cloud Enabler of the Year



Storage Magazine Editors Choice



Availability Platform of the Year



PRODUCT OF THE YEAR



STORAGE PRODUCT OF THE YEAR



PRODUCT OF THE YEAR



STORAGE PRODUCT OF THE YEAR



WINNER



WINNER 2015



iSCSI for Ceph



CephFS



FINALIST 2016

STORAGE / NETWORK

SUSE Enterprise Storage

Bridge to the Future

Today's Data Center

- Traditional data center with storage silos
- Disparate network, compute and storage setup
- Data center disruptions because of regularly changing technologies

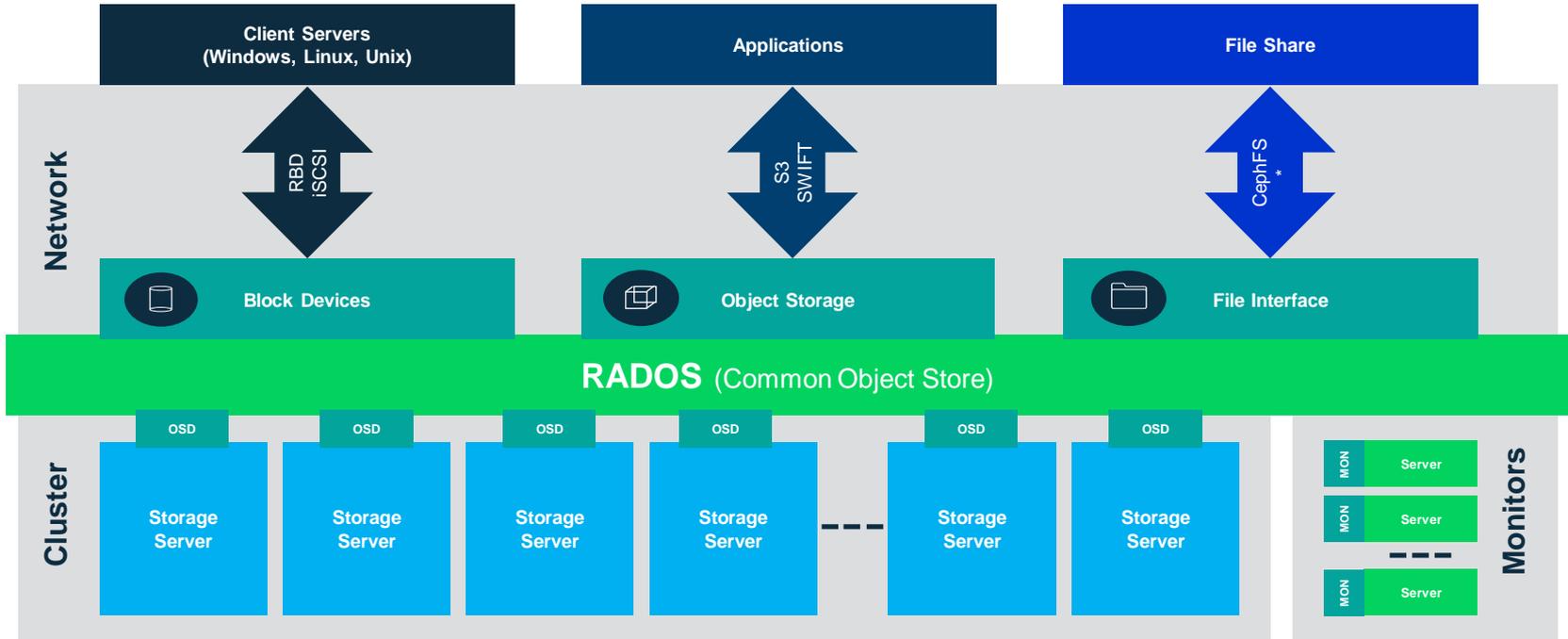
Tomorrow's Data Center

- Software-defined data center
- Agile infrastructure with support for DevOps model through automation
- Simplified data center management
- Increased speed of delivery

SUSE Enterprise Storage is the first step in a software-defined future.

SUSE Enterprise Storage

Open Source Ceph as the Base



How to Deploy SUSE Enterprise Storage

Steps to Deploy with DeepSea

`salt-run state.orch ceph.stage.0 (prep)`

`salt-run state.orch ceph.stage.1 (discovery)`

Edit proposal(s) and policy.cfg file

`salt-run state.orch ceph.stage.2 (configure)`

`salt-run state.orch ceph.stage.3 (deploy core)`

`salt-run state.orch ceph.stage.4 (deploy iscsi,
rgw, mds, etc)`





We adapt. You succeed.

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