Open Virtualization Infrastructure for large Telco: How Turkcell adopted oVirt for its test and development environments

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About Turkcell

- Turkcell is a digital operator headquartered in Turkey
- Turkcell Group companies operate in 5 countries – Turkey, Ukraine, Belarus, Northern Cyprus, Germany
- Turkcell is the only NYSE-listed company in Turkey.
- www.turkcell.com.tr
Business Objectives

- Alternative solutions compatible with Turkcell operational and security standards
- Dissemination of open source infrastructure technologies within the company
- Competitive infrastructure with cost advantage
The journey of oVirt
The Journey of oVirt

1. Research & Development
2. Go-Live Phase-1
3. Go-Live Phase-2
4. Private Cloud Automation
5. Go-Live RHV
1. Research & Development

- **Motivation Factors**
  - Cost
  - Participation
  - Regulation
  - Independence
  - Expertise

- **Risk Factors**
  - Security
  - Quality
  - Compliance
  - Support
  - Worst Practices
Why oVirt?
- Open Source licensing
- Community contribution
- The same roadmap with commercial product
- Support via subscription if required
- Adequate features for enterprise management
- Rest API support
Research & Development

1. Research & Development

- **Difficulties for new infra solution**
  - Integration with current infrastructure
    - Centralized Management
    - Certified/Licensed Solutions
    - Integration Cost
  - Incident & Problem Management
    - 3rd Party Support
    - Support with SLA
  - Acquired Habits
    - Customer Expectations
    - Quality of IT Infrastructure Services
1. Research & Development

- **What we achieved**
  - Building of PoC environment
  - V2V Migration
  - Upgrade Tests starting with v.4.3.2
  - Functional Tests
  - Backup Alternative Solutions
Go-Live Phase-1

2. Go-Live Phase-1

- Phase-1 contains:
  - Building of new oVirt platform with unused h/w
  - Selection of VMs for migration
  - Migration of VMs using v2v
  - Upgrade of oVirt platform v4.3.6 to v4.3.8
  - Go/No-Go decision
  - To continue to v2v VM migrations
  - To continue to backup solution selection
Go-Live Phase-2

3. Go-Live Phase-2

- Phase-2 contains:
  - Building of new oVirt platforms with new h/w
  - Upgrade of oVirt platform v.4.3.8 to v.4.3.10
  - Accepting new VM requests
  - To continue v2v VM migrations
  - To finalize backup solution selection
oVirt Topology

Turkcell DC #1

- oVirt engine

LAN CLUSTER
- VM
- Hypervisor
- FC LUNs
- Trunk Network

DMZ CLUSTER
- VM
- Hypervisor
- FC LUNs
- Trunk Network

Turkcell DC #2

- oVirt engine

LAN CLUSTER
- VM
- Hypervisor
- FC LUNs
- Trunk Network

DMZ CLUSTER
- VM
- Hypervisor
- FC LUNs
- Trunk Network
oVirt Backup Topology

- oVirt engine
- vProtect Node
- VM
- Hypervisor
- Data export over SSH from Hypervisor
- Backup Network
- vProtect server
- EMC Data Domain
- DD Boost
Private Cloud Automation

4. Private Cloud Automation

- oVirt virtualization end-to-end integration over REST API
- Turkcell has its own orchestration development to support Private Cloud Infrastructure.
- Private Cloud solution has integration with Corporate Service Portal and Infra Platforms.
Go-Live RHV

5. Go-Live RHV

- The success of oVirt migration is the key for RHV.
- RHV is used for OpenShift Platforms.
- This is an another story 😊
RHV Topology

Turkcell DC #1
- oVirt engine
- OpenShift CLUSTER
- FC LUNs
- Trunk Network

Turkcell DC #2
- oVirt engine
- OpenShift CLUSTER
- FC LUNs
- Trunk Network

OpenShift GPU CLUSTER
- FC LUNs
- Trunk Network
It would be better, if

- **Migration**
  - oVirt supports v2v online migration
  - oVirt supports v2v RHEL 8 migration with v.4.3

- **Upgrade**
  - oVirt supports simple upgrade scenario from v.4.3 to v.4.4

- **Automation**
  - oVirt Guest Tools supports to run external commands or provide outputs for external
Thank you!

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