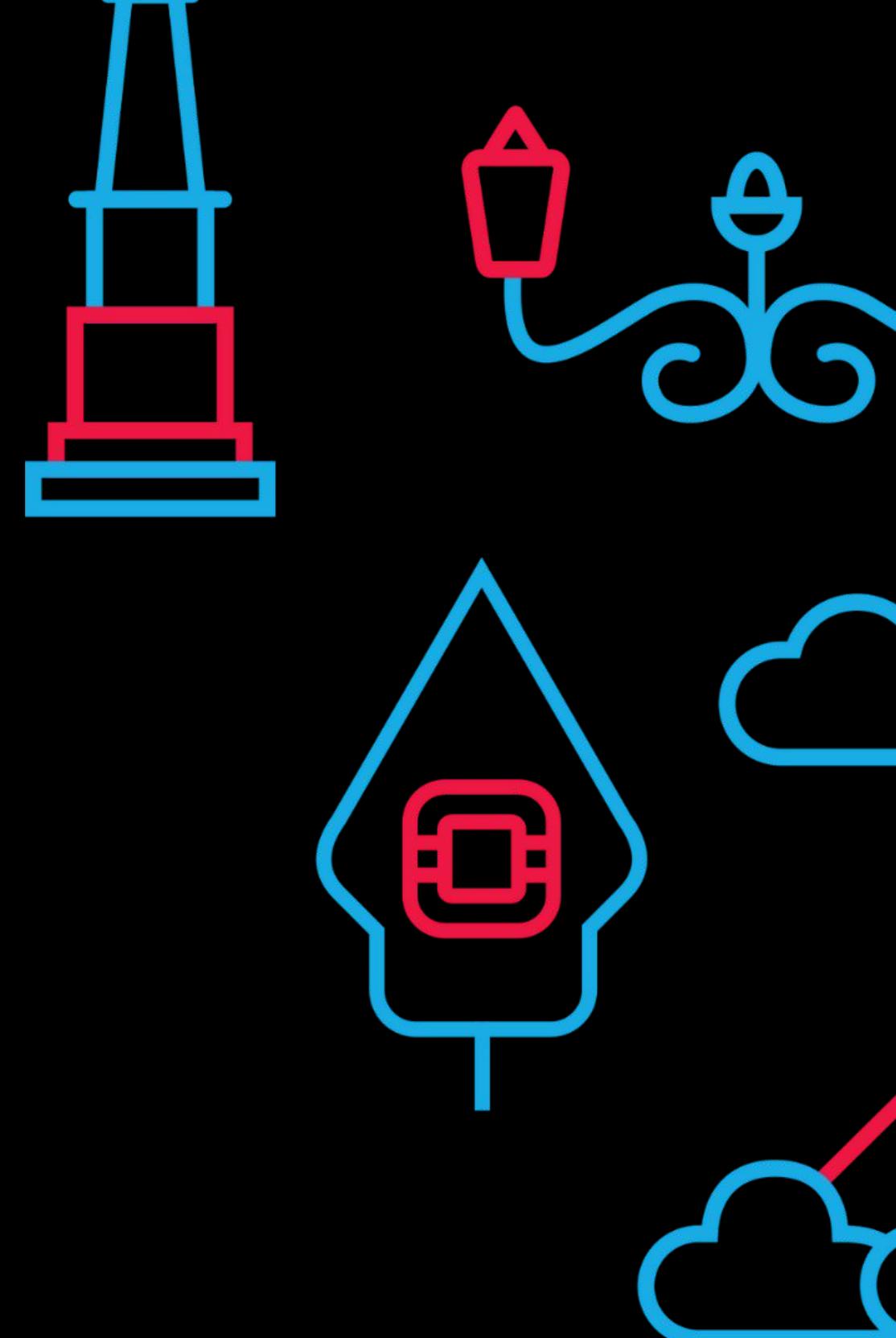


# CEPH UPGRADES MADE SIMPLE

AJI ARYA

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Yogyakarta, 19 July 2025

# DISCLAIMER

The content presented in this talk is intended solely for the purpose of sharing knowledge and insights. It does not represent the views, opinions, or interests of any of my current or past employers.

A dramatic illustration of a knight in full armor, including a helmet and chainmail, engaged in combat with a massive, tentacle-laden octopus. The knight holds a long sword in one hand and a shield in the other, facing the giant tentacles that wrap around him. The scene is set in a dark, turbulent sea under a cloudy, stormy sky.

# Agenda

- Introduction
- Challenges of Ceph Upgrade
- Simplifying the Upgrade Process
- Ceph Upgrade Maps
- Q&A

~\$ whoami

user: {name: aji\_arya, role: cloud\_architect}

active\_buffs: [“coa”, “cka”, “rhca\_iii”]

main\_quests: [“building\_cloud”, “maintaining\_cloud”, “fix\_cloud\_issues”]

side\_quests: [“gym”, “content\_creating”]

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Instagram: @ajiarayaa

# Introduction

What is Ceph Storage?

Why Upgrade Ceph?



Objective: Share strategies to make Ceph upgrades straightforward.

# Challenge of Ceph Upgrades

- Downtime
- Upgrade Failure
- Deprecated Components:
  - Operating System End-of-Life
  - MON (LevelDB → RocksDB) LevelDB deprecated in Quincy 17.2.x Release ([Release Note](#))
  - OSD (FileStore → BlueStore) FileStore deprecated in Reef 18.2.x Release ([Release Note](#))

# Ceph Checklist

- Exercise Ceph Upgrades on Test Environment
- Automates the Upgrade Process
- Check Compatibility Matrix
- Write Documentation
- Prepare Validation Checklist



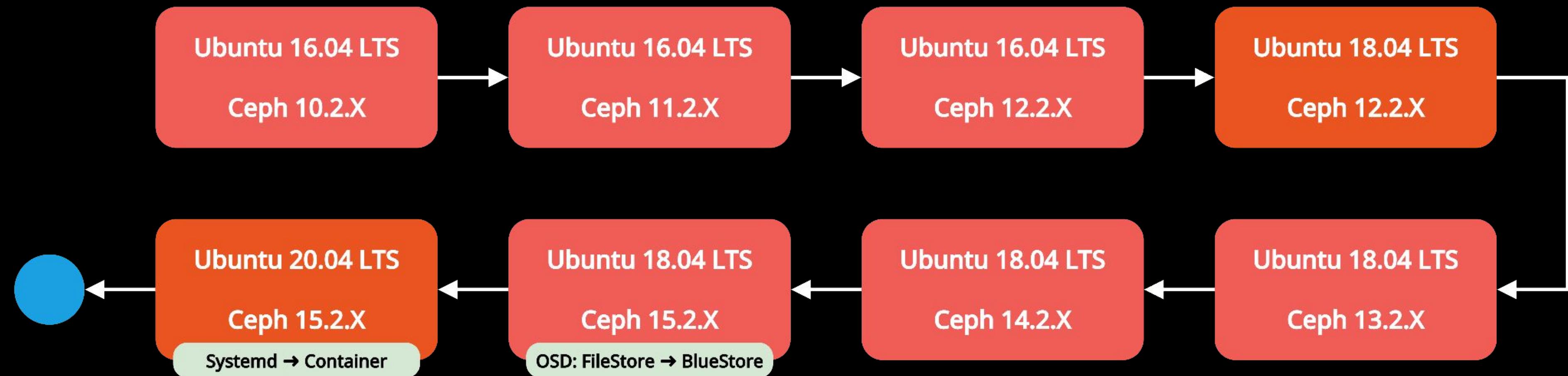
# Simplifying Ceph Upgrades

- Upgrade Ceph Package ([Read Here](#))
- Upgrade Operating System
- Migrate OSD FileStore → BlueStore ([Read Here](#))
- Containerize Ceph ([Read Here](#))
- Migrate MON LevelDB → RocksDB (Read on the next slide)
- Upgrade Ceph Container ([Read Here](#))



## Arc 1 - The Dark Void

# Ceph Upgrades Map (Arc 1: The Dark Void)

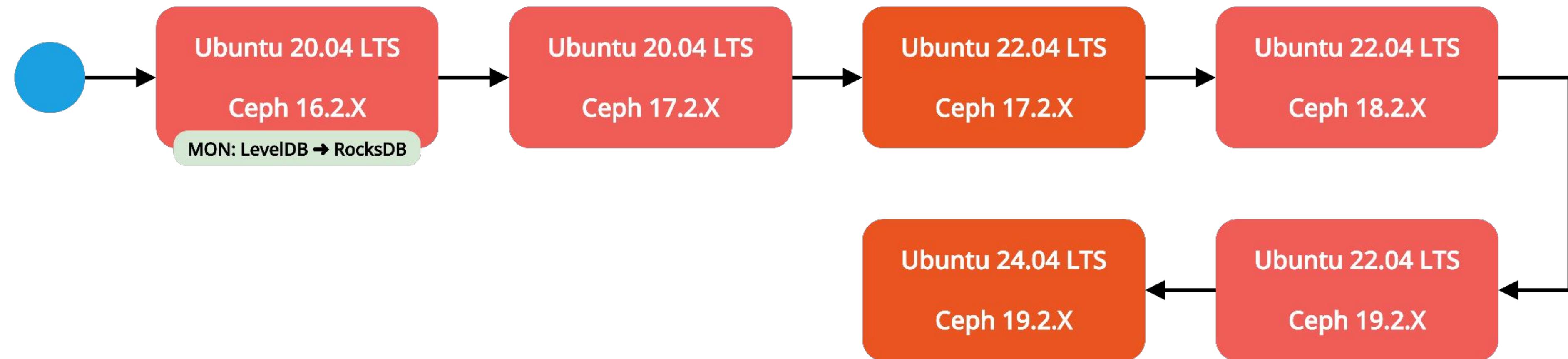


cephadm can only manage Ceph OSD with BlueStore ([Read Here](#))



## Arc 2 - The Enlightenment

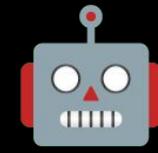
# Ceph Upgrades Map (Arc 2: The Enlightenment)



# Key Takeaways



Execute Thorough Preparation



Implement Automation Efficiently



Ensure Rigorous Validation



# Migrate MON LevelDB → RocksDB

Scenario: 3 x Ceph Mon ["mon01", "mon02", "mon03"]

Steps:

1. Destroy mon03

```
ceph orch apply mon "mon01,mon02"
```

2. Wait mon03 removed then recreate mon03 and destroy mon02

```
ceph orch apply mon "mon01,mon03"
```

3. Wait mon03 removed then recreate mon02 and destroy mon01

```
ceph orch apply mon "mon02,mon03"
```

4. Wait mon01 removed then recreate mon01

```
ceph orch apply mon "mon01,mon02,mon03"
```

```
# Verify: cat /var/lib/ceph/<UUID>/mon.<hostname>/kv_backend
```

# Resources

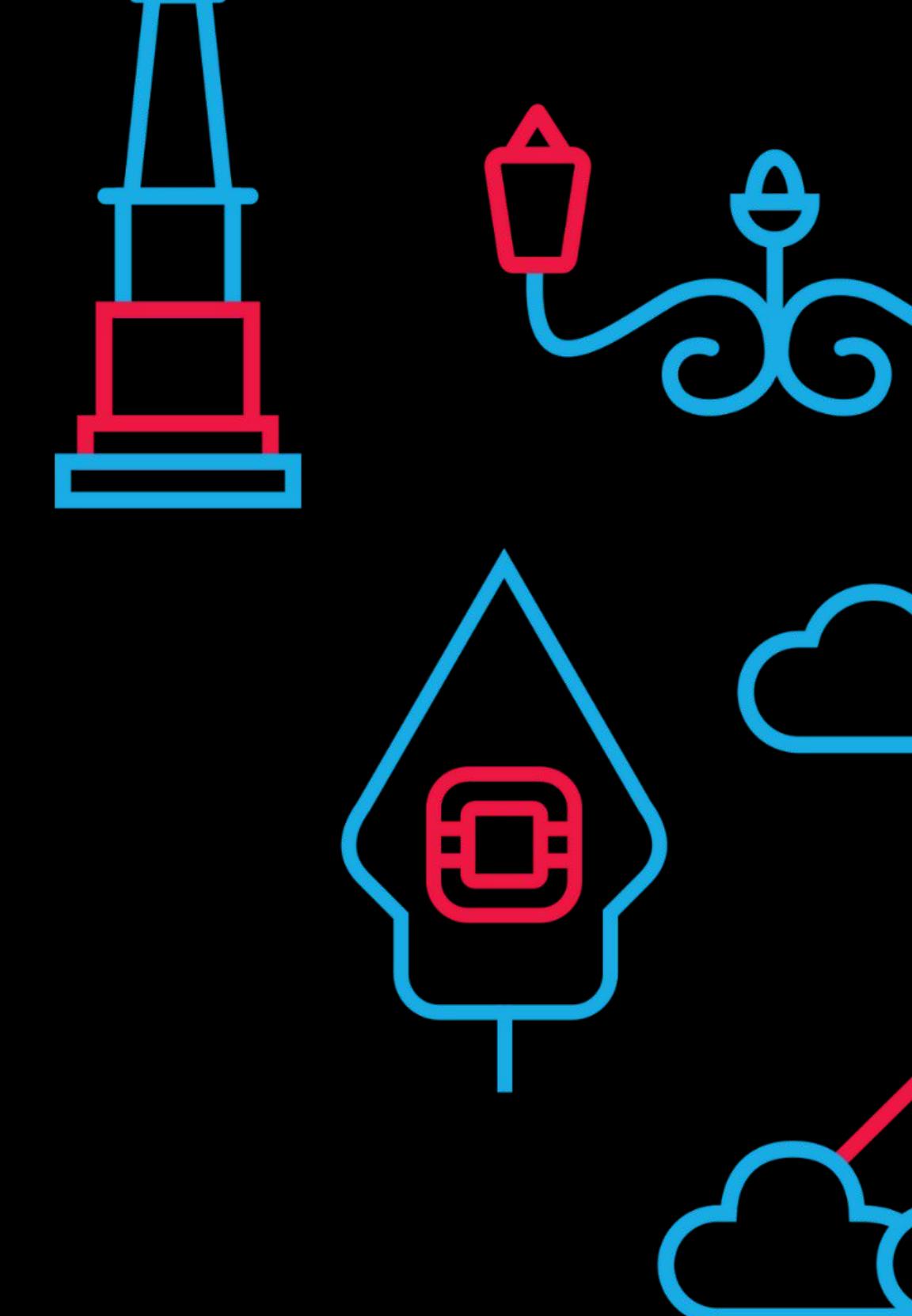
- Upgrade Ceph via Package Upgrade ([Read Here](#))
- Migrate OSD FileStore → BlueStore ([Read Here](#))
- Containerize Ceph ([Read Here](#))
- Migrate MON LevelDB → RocksDB (Read on the next slide)
- Upgrade Ceph via Cephadm ([Read Here](#))



# Q&A

# THANK YOU

This Slide QR:



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