



StarlingX Driving Compute to the Edge - Project Overview

Learn, Try, Get Involved!

IAN JOLLIFFE – STARLINGX TSC MEMBER

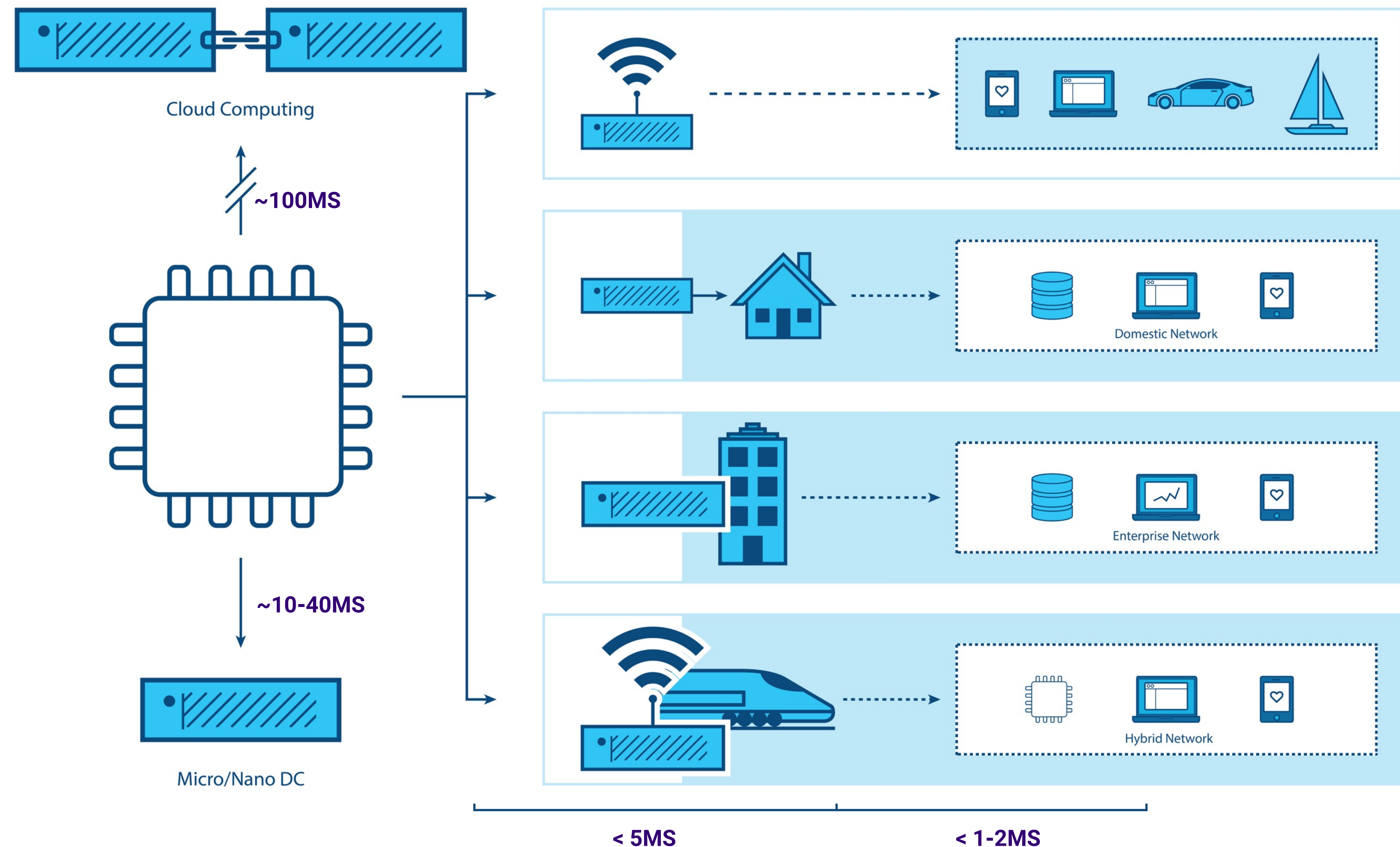
@IAN_JOLLIFFE

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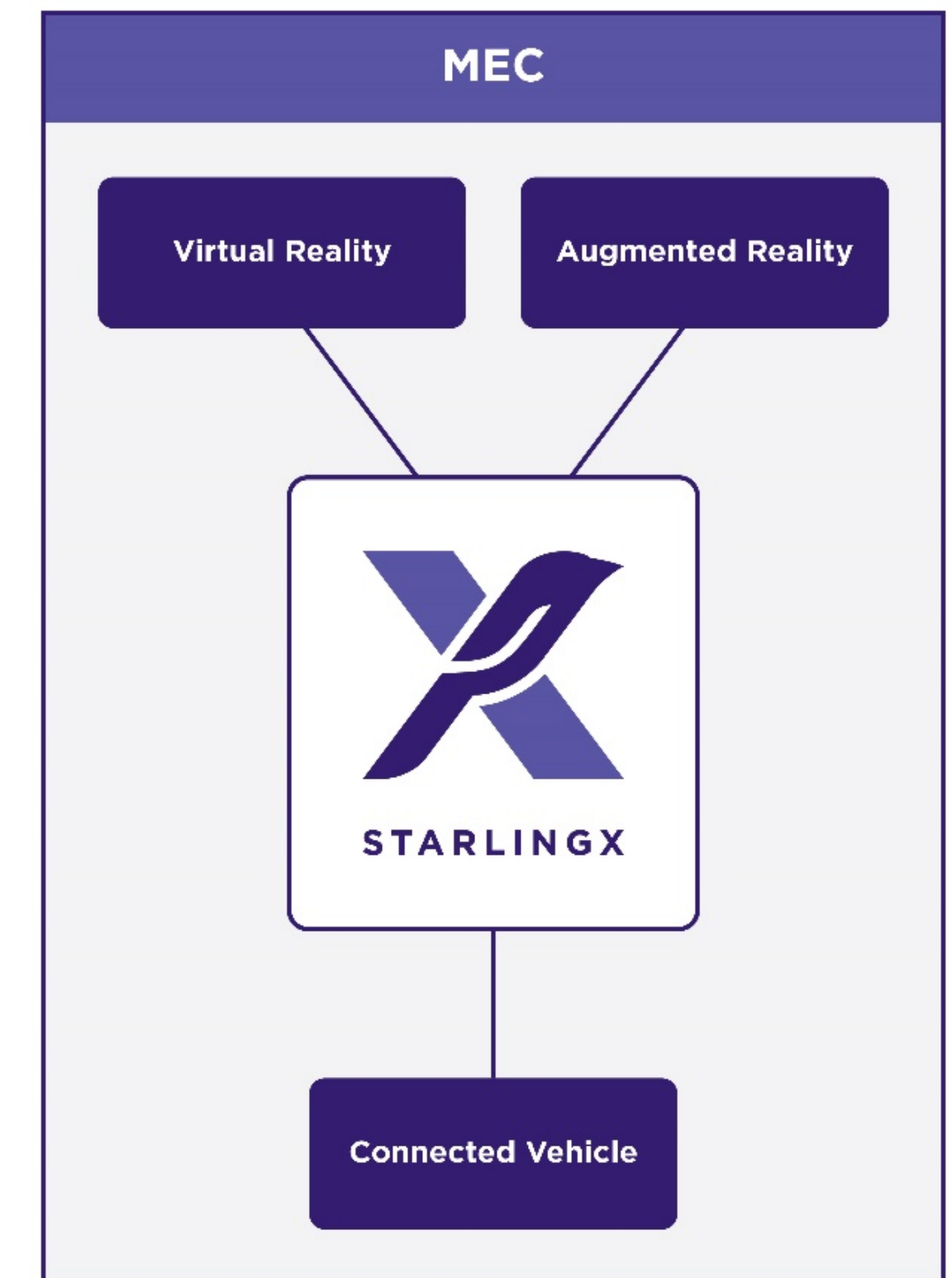
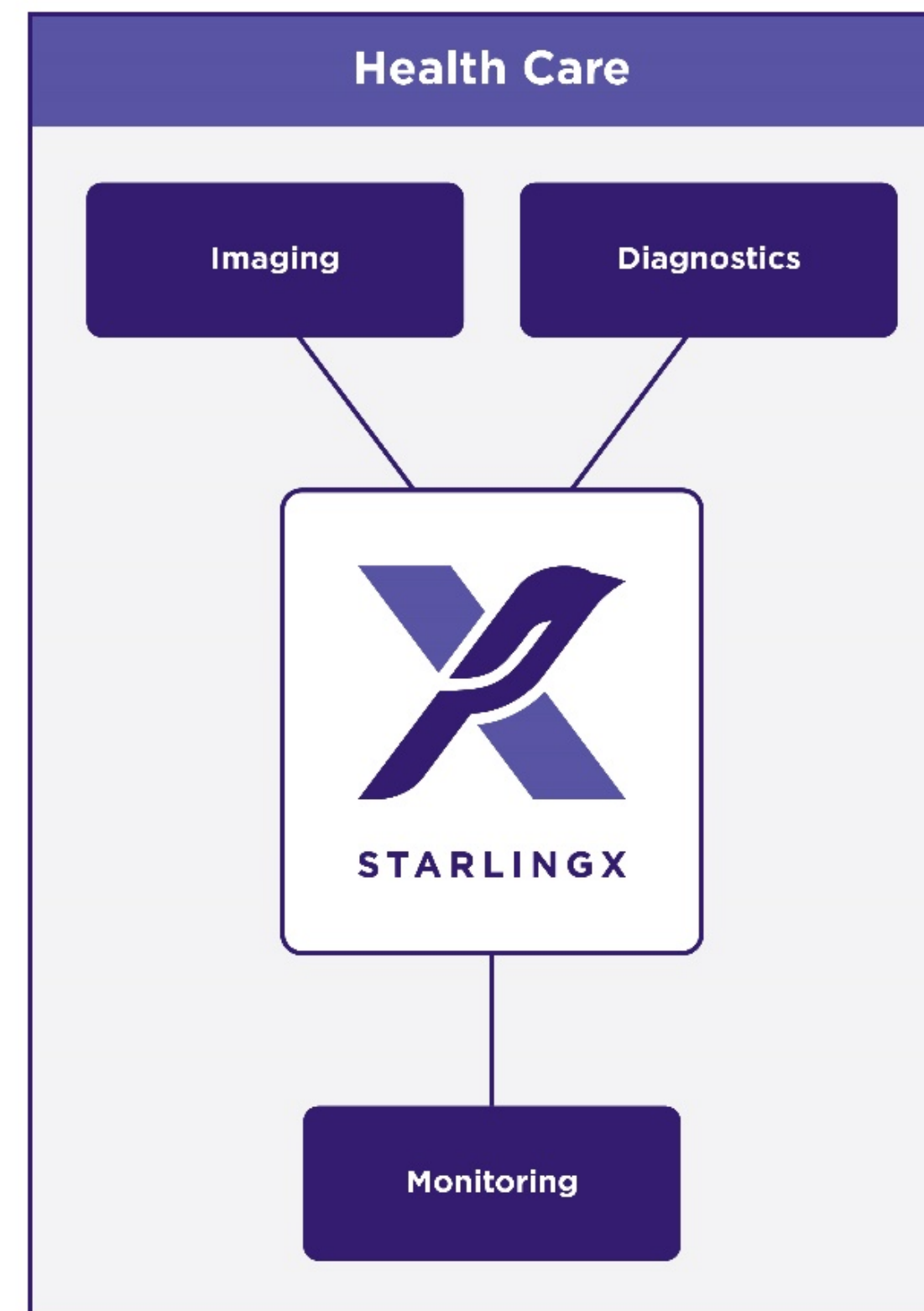
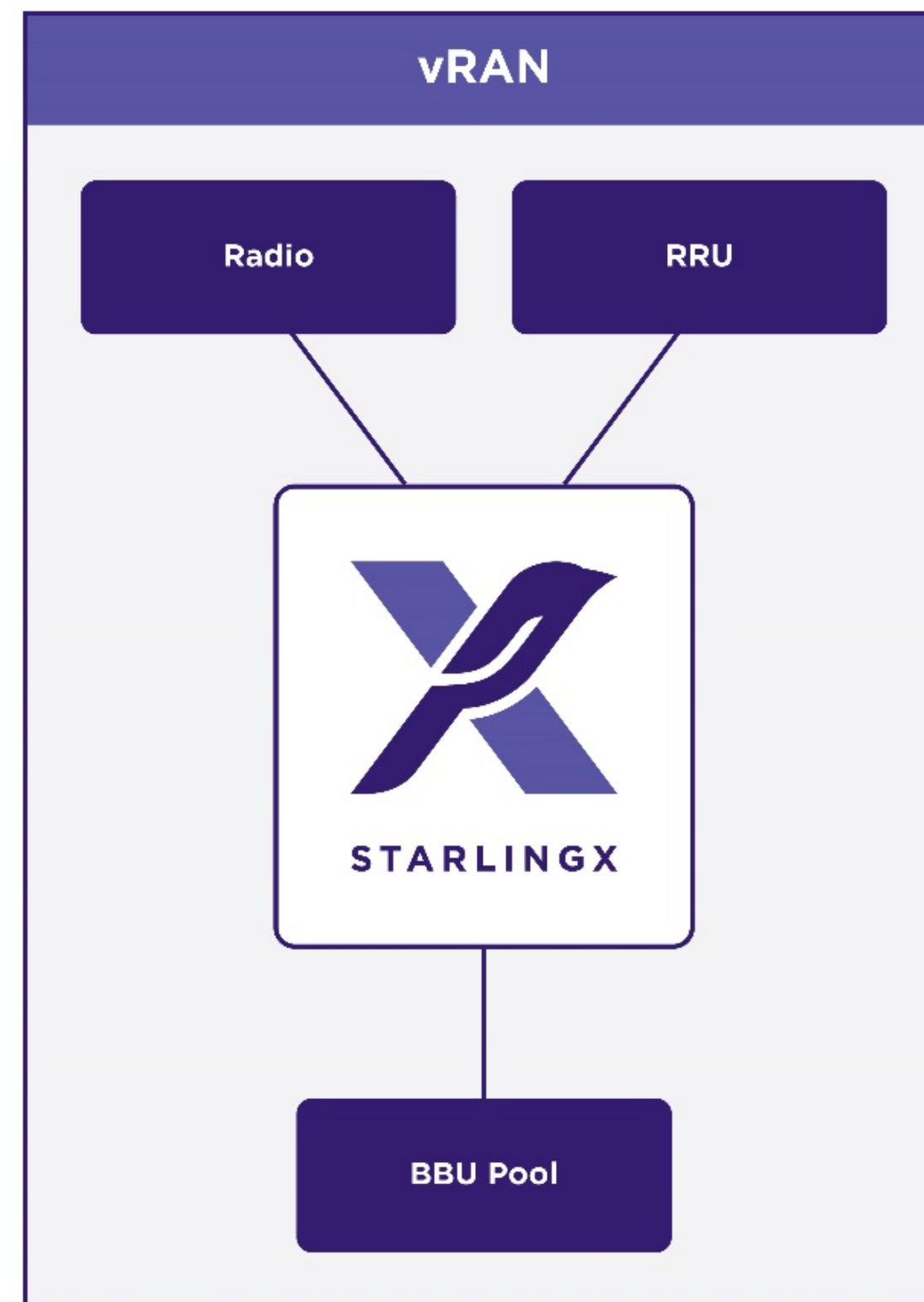
What Is Driving Edge Computing?

- A. Latency
- B. Bandwidth
- C. Security
- D. Connectivity

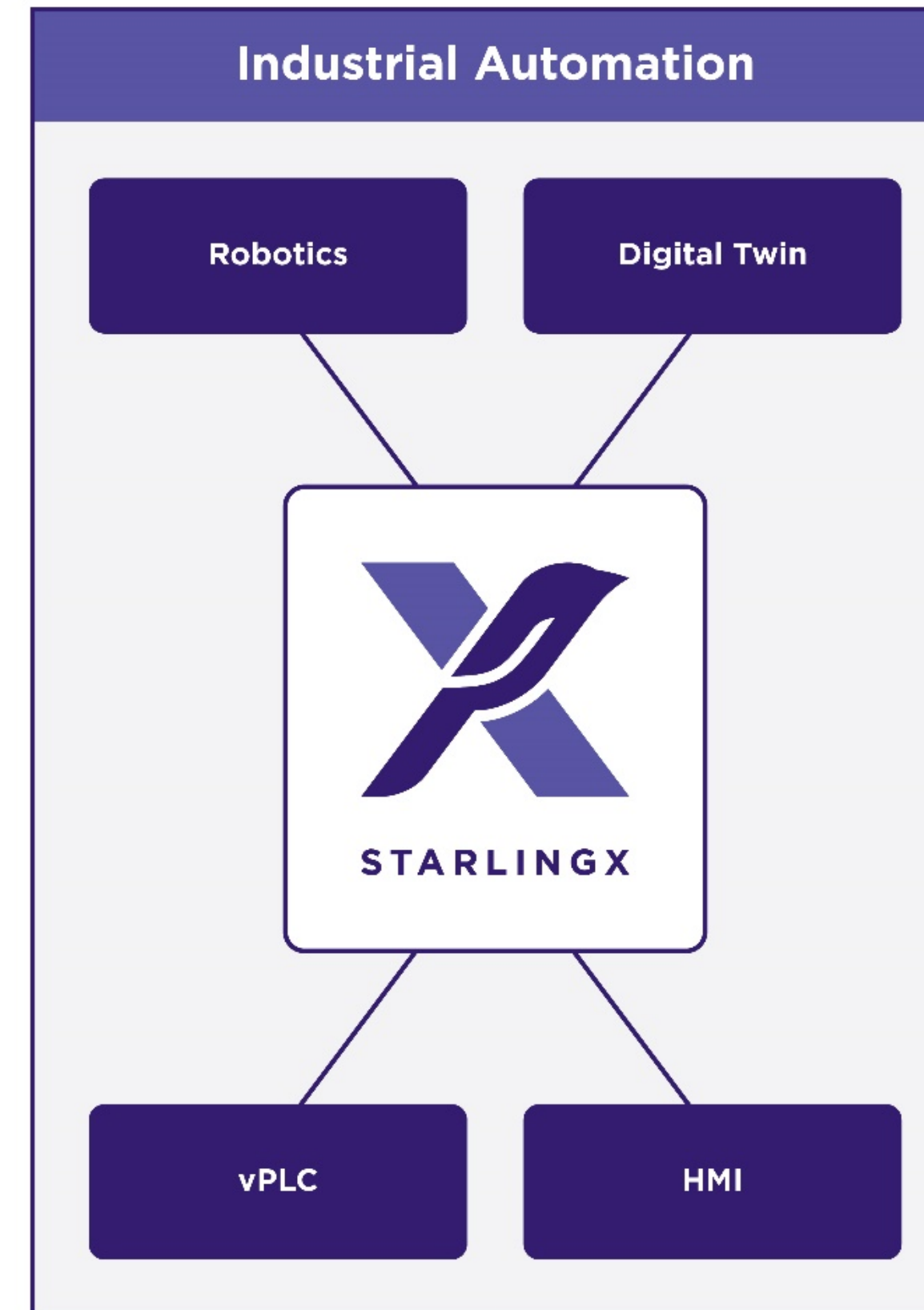
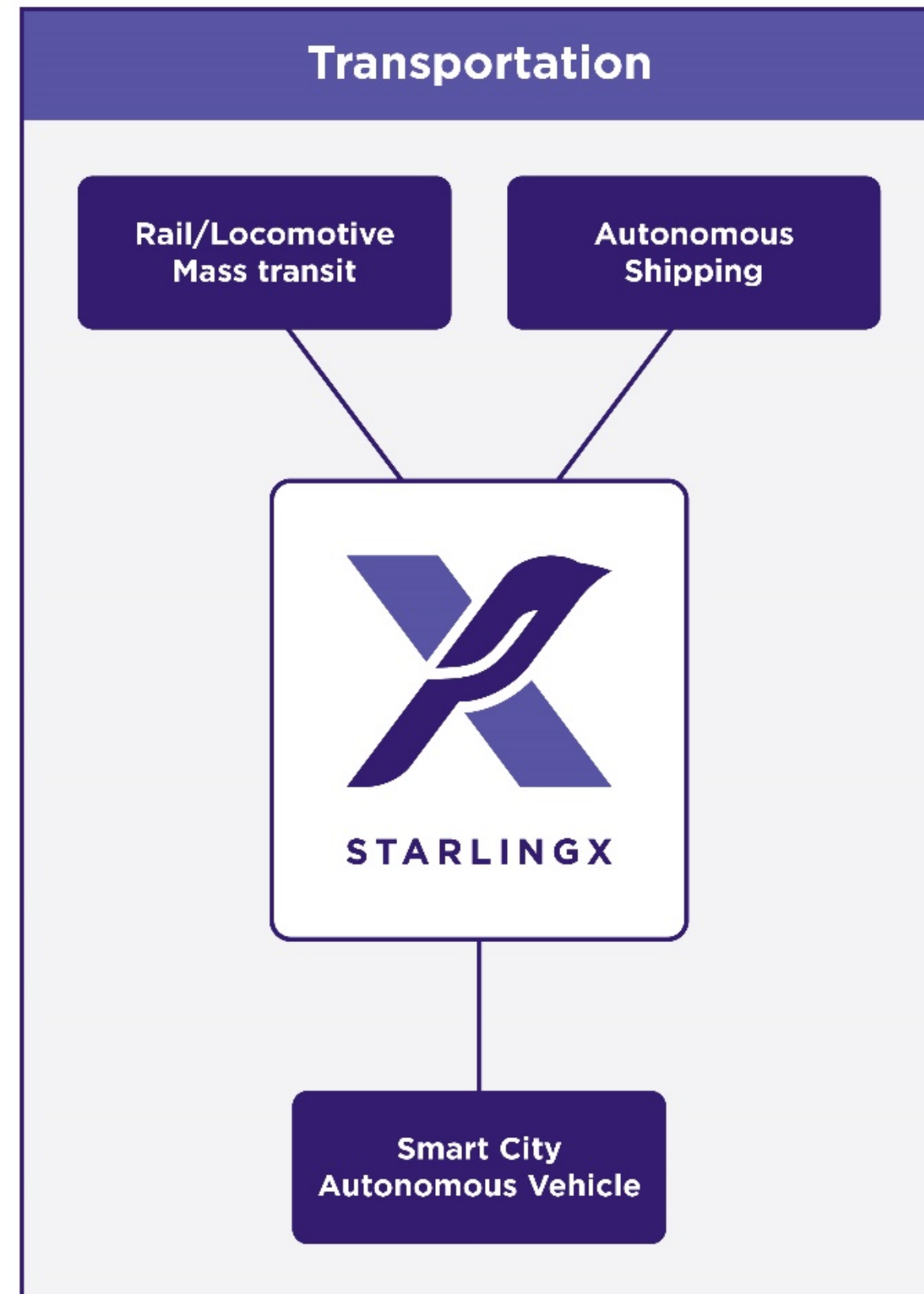
“WHERE” MATTERS



Edge Computing Use Cases



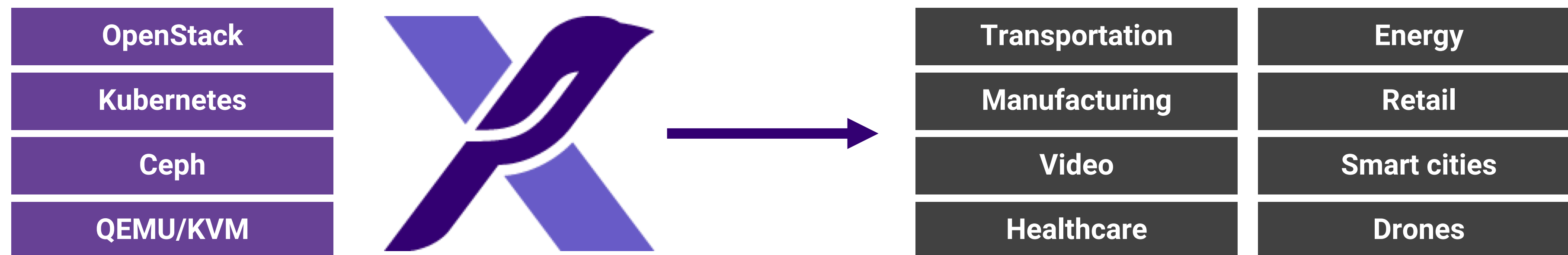
Edge Computing Use Cases



Intent of the StarlingX Project

Re-Configure Proven Cloud Technologies for Edge Compute

- Orchestrate system-wide
 - Deploy and manage Edge clouds, share configurations
- Simplify deployment to geographically dispersed, remote Edge regions



StarlingX Technology

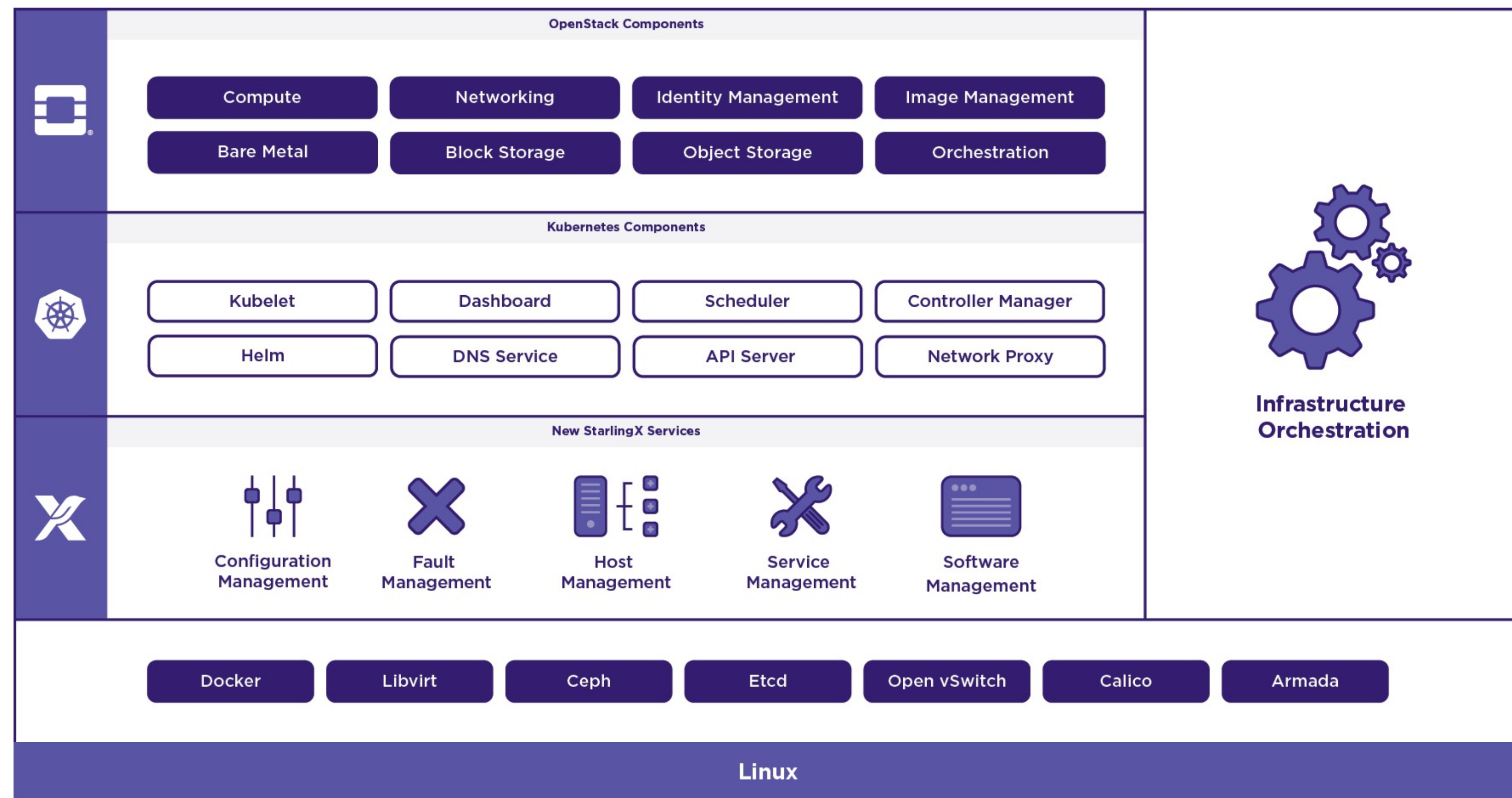
StarlingX – Edge Virtualization Platform

StarlingX provides a **deployment-ready, scalable, highly reliable** Edge infrastructure software platform

Services from the StarlingX virtualization platform focus on

- **Easy deployment**
- **Low touch manageability**
- **Rapid response to events**
- **Fast recovery**

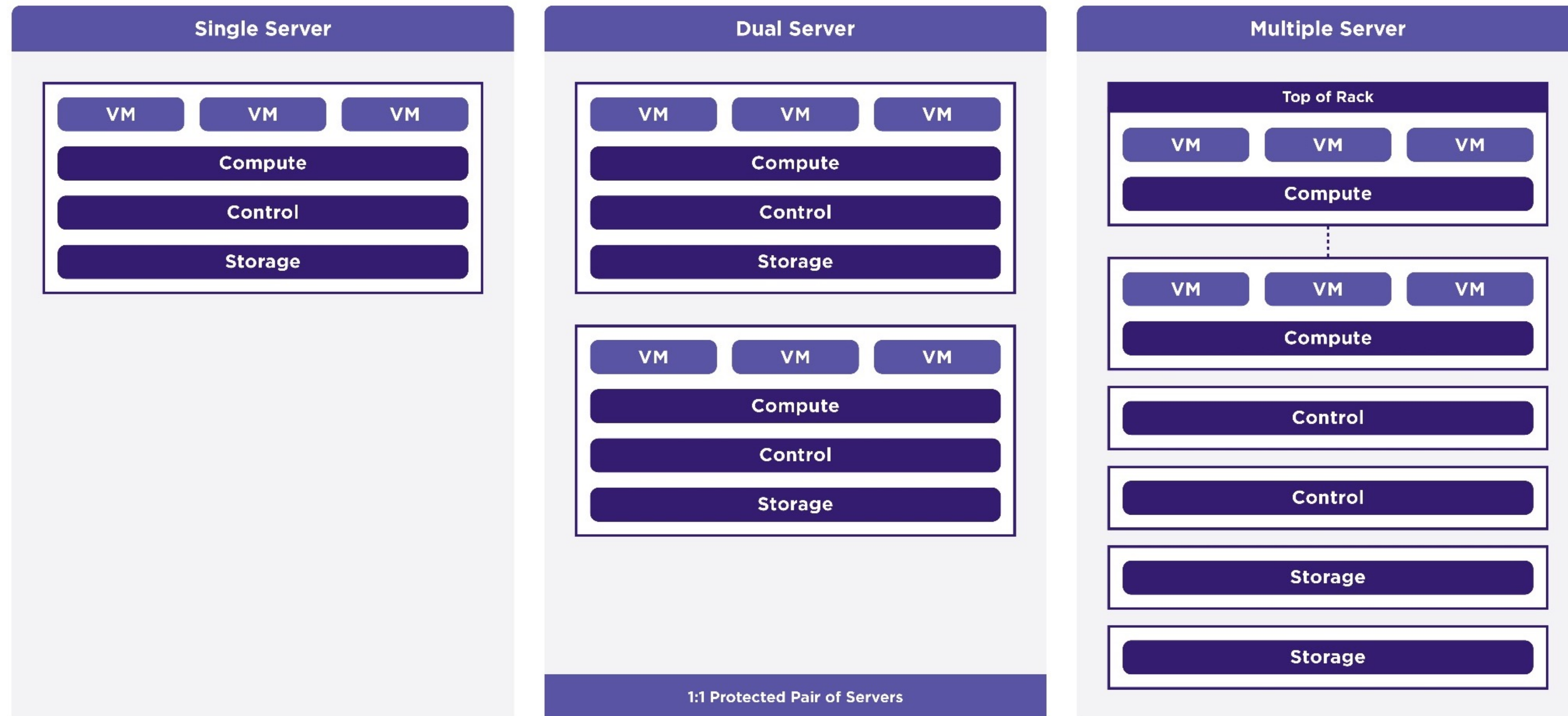
Think control at the Edge, control between IoT and Cloud, control over your virtual machines.



There are more OpenStack and Kubernetes components used than represented in this diagram.

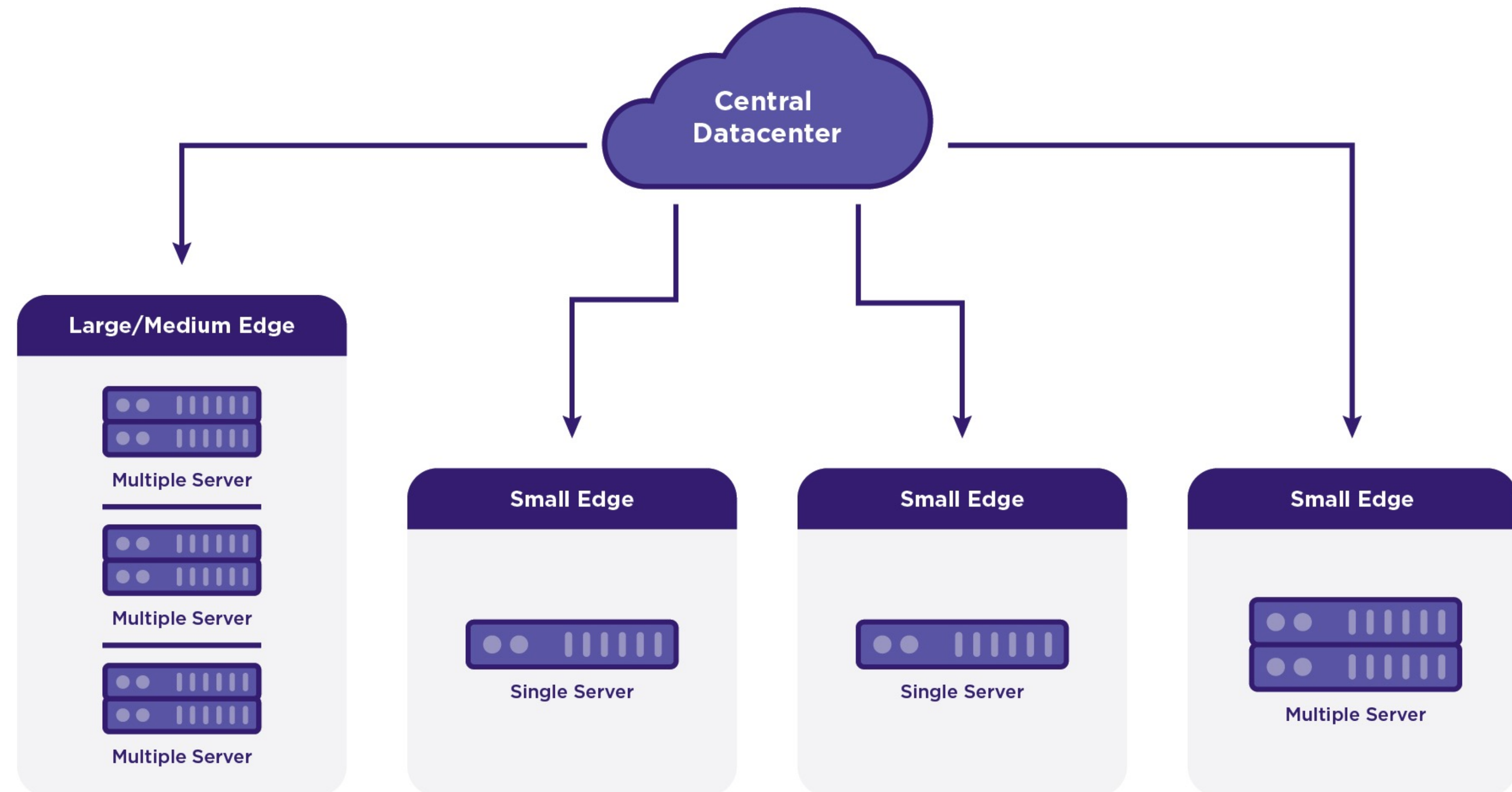
Scalability from Small to Large

- **Single Server**
 - Runs all functions
- **Dual Server**
 - Redundant design
- **Multiple Server**
 - Fully resilient and geographically distributable



Scaling from the Core to the Edge

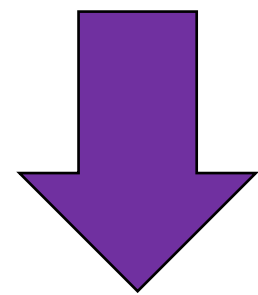
- Single pane of glass distributed multi-region deployment,
- Central Datacenter providing Orchestration and Synchronization Services,
- Geographically distributed Edge Sites of various sizes



Evolving the technology stack

StarlingX Cloud provides

- a hardened OpenStack platform,
- On dedicated physical servers.

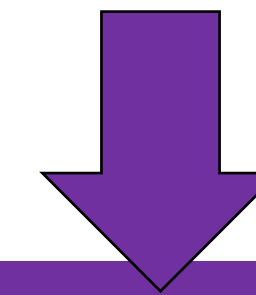


- StarlingX is evolving to provide
 - Hardened cloud-native Kubernetes platform,
 - OpenStack as an application,
 - On dedicated physical servers.

OPENSTACK

STARLINGX INFRASTRUCTURE

PHYSICAL SERVERS



CONTAINERIZED OPENSTACK

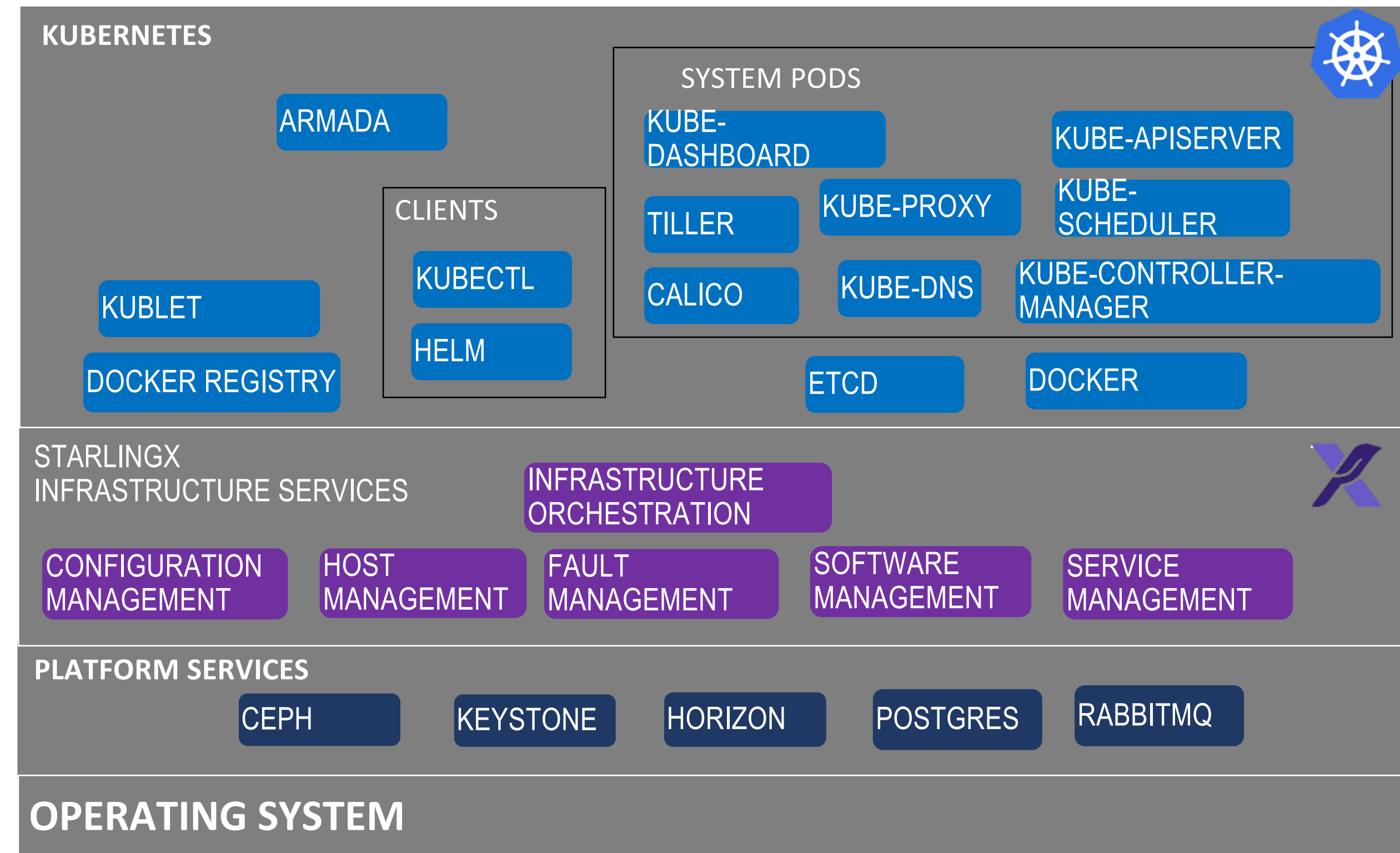
KUBERNETES

STARLINGX INFRASTRUCTURE

PHYSICAL SERVERS

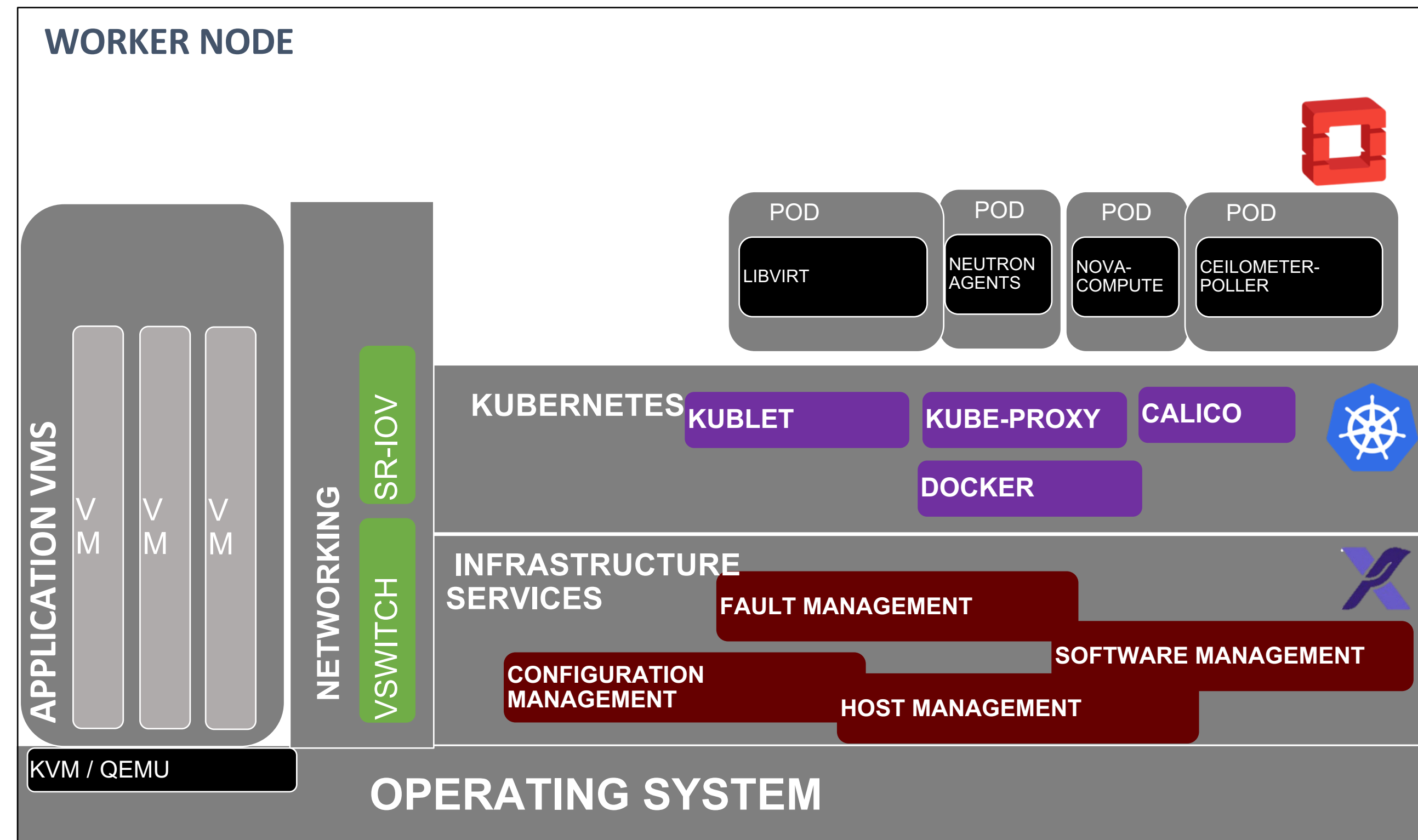
StarlingX – Next Gen Container Platform

- High availability k8s master configuration on 2x nodes
 - Runs on STX controllers → small footprint HA
 - Deployed by STX system configuration
- **Plug-ins:**
 - Calico CNI plugin
 - Docker runtime
- CEPH as persistent storage backend for Containers
- Authentication/authorization of k8s API with keystone
- Local docker image registry; authentication with keystone
- HELM as the package manager
- Leverage Horizon, Postgres and Rabbitmq in Container Platform in support of StarlingX Infrastructure Services
- Long term, StarlingX Infrastructure Services will be containerized



On Compute / Worker Nodes

- Nova-compute and libvirt are containerized
- Neutron agents are containerized
- Ceilometer-poller is containerized
- vSwitch is not containerized
 - future vision



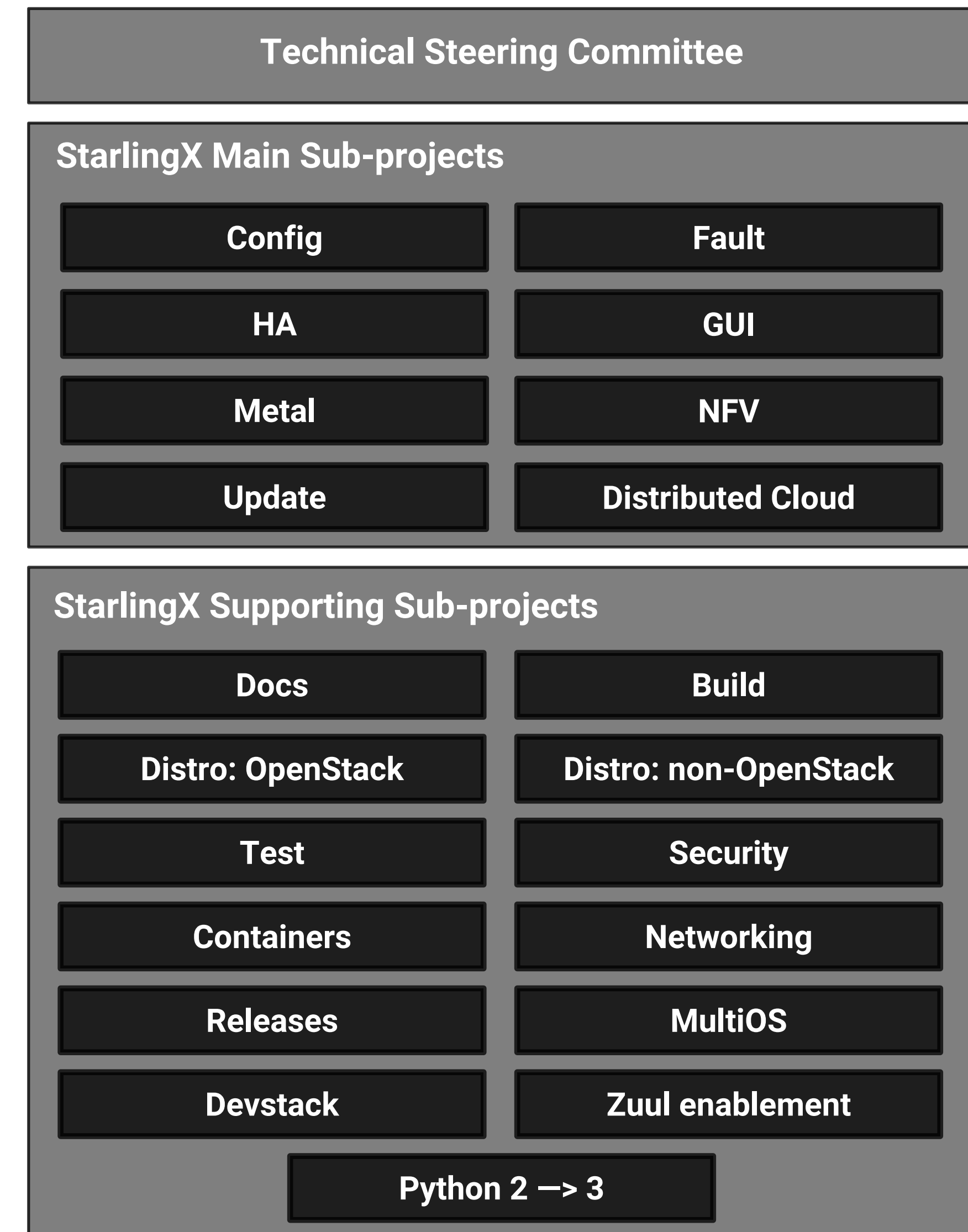
Community and Contributing

Principles

- The StarlingX project follows the “four opens,”
 - Open Collaboration
 - Open Design
 - Open Development
 - Open Source
- Technical decisions will be made by technical contributors and a representative Technical Steering Committee.
- The community is committed to diversity, openness, encouraging new contributors and leaders to rise up.

Sub-project Structure

- Main sub-projects
 - New functionality and services
- Supporting sub-projects
 - Supporting services, test and infrastructure
- Sub-project team structure
 - 1 Team Lead
 - 1 Project Lead
 - Core Reviewers
 - Contributors



Come join the fun

- Code and documentation are available through git
 - git.starlingx.io
- Apache 2 license
- IRC: #starlingx@Freenode
- Mailing List for daily discussions
 - <http://lists.starlingx.io/cgi-bin/mailman/listinfo/starlingx-discuss>

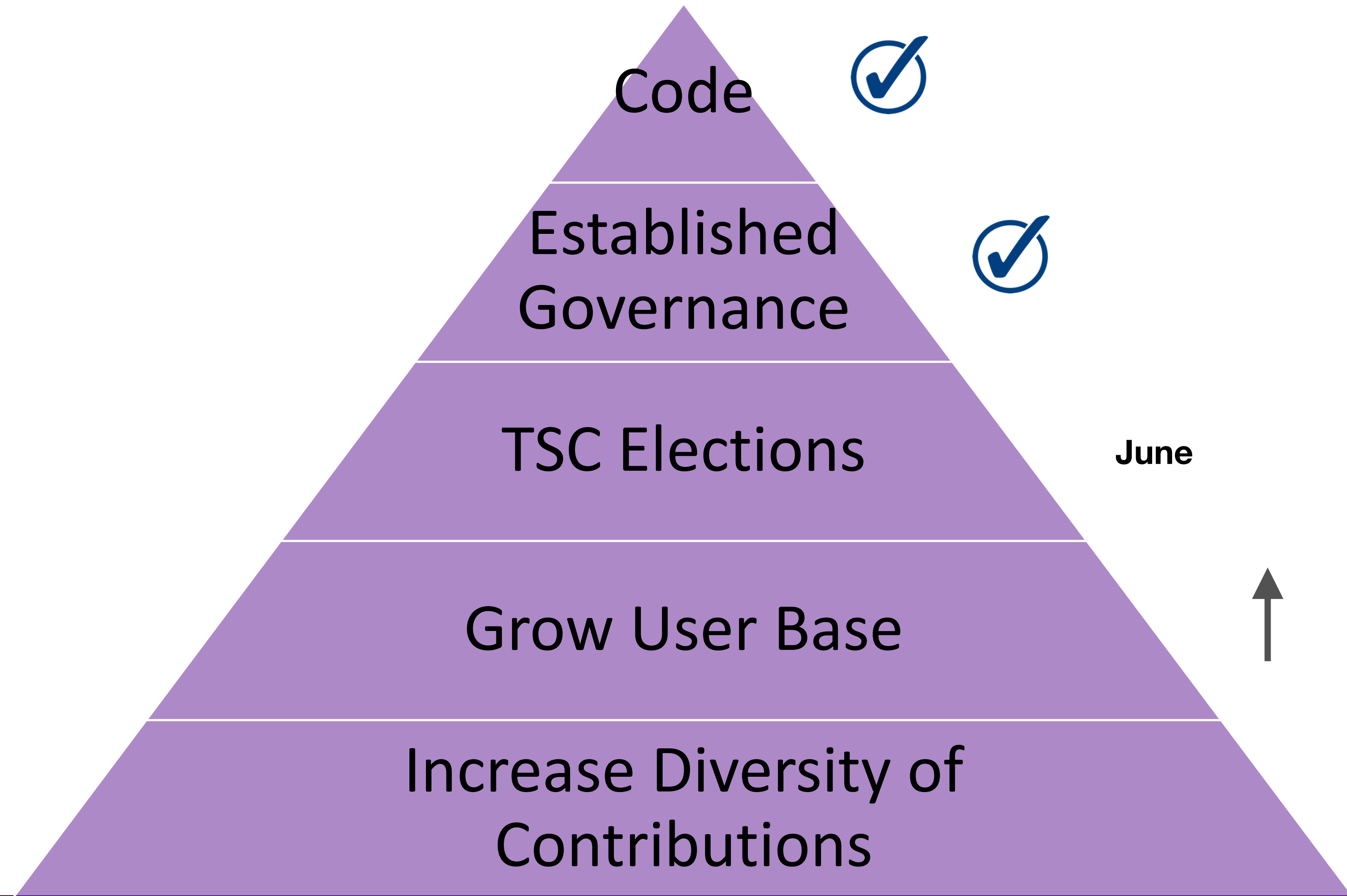
Akraino Blueprint – Far Edge Cloud

- Far Edge Cloud
 - Based on StarlingX
 - Brings in EdgeX foundry as an application
 - In the demo publishes events via MQTT
 - Demo video is running in the LF Edge booth

Akraino Blueprint Demo

- <https://wiki.akraino.org/download/attachments/6128319/Akraino-StarlingX-EdgeX.mp4?api=v2>

The Journey





JOURNEY



TECHNOLOGY



COMMUNITY

Where to Contribute?

- Bugs are tracked in Launchpad
 - <https://bugs.launchpad.net/starlingx>
- New ideas are introduced in the specs repository
 - <https://git.openstack.org/cgit/openstack/stx-specs/>
- Design and implementation work is tracked in StoryBoard
 - https://storyboard.openstack.org/#!/project_group/86
- Further information about sub-teams and processes
 - <https://wiki.openstack.org/wiki/StarlingX>

Communication

- #starlingx@Freenode, IRC channel for online discussions
- Mailing Lists: lists.starlingx.io
- Email: info@starlingx.io
- Weekly meetings:
 - Zoom calls
 - <https://wiki.openstack.org/wiki/Starlingx/Meetings>
- Twitter handle: @StarlingX



A FULLY FEATURED CLOUD FOR THE DISTRIBUTED EDGE

JOIN THE COMMUNITY

MAILING LISTS: [LISTS.STARLINGX.IO](https://lists.starlingx.io)

FREENODE IRC: #STARLINGX

WEBSITE: [WWW.STARLINGX.IO](https://www.starlingx.io)

**JOIN THE FOUNDATION MAILING LIST
TO STAY UP TO DATE ON ALL NEW
PROJECTS!**

Thank You!