StarlingX Driving Compute to the Edge - Project Overview

Learn, Try, Get Involved!

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STARLINGX.IO
What Is Driving Edge Computing?

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

“WHERE” MATTERS

Cloud Computing

~100MS

~10-40MS

Micro/Nano DC

< 5MS

< 1-2MS
Edge Computing Use Cases

vRAN
- Radio
- RRU
- BBU Pool

Health Care
- Imaging
- Diagnostics
- Monitoring

MEC
- Virtual Reality
- Augmented Reality
- Connected Vehicle
Edge Computing Use Cases

Transportation
- Rail/Locomotive
- Mass transit
- Autonomous Shipping

Smart City
- Autonomous Vehicle

Industrial Automation
- Robotics
- Digital Twin

vPLC
- HMI
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

*Other names and brands may be claimed as the property of others
StarlingX Technology
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.

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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.
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
  - 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

The Journey

- Code
- Established Governance
- TSC Elections
- Grow User Base
- Increase Diversity of Contributions

June
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
FREENODE IRC: #STARLINGX
WEBSITE: WWW.STARLINGX.IO

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