OCP U.S. SUMMIT 2016

Transforming Networks to All-IT Network with OCP and Open Networking

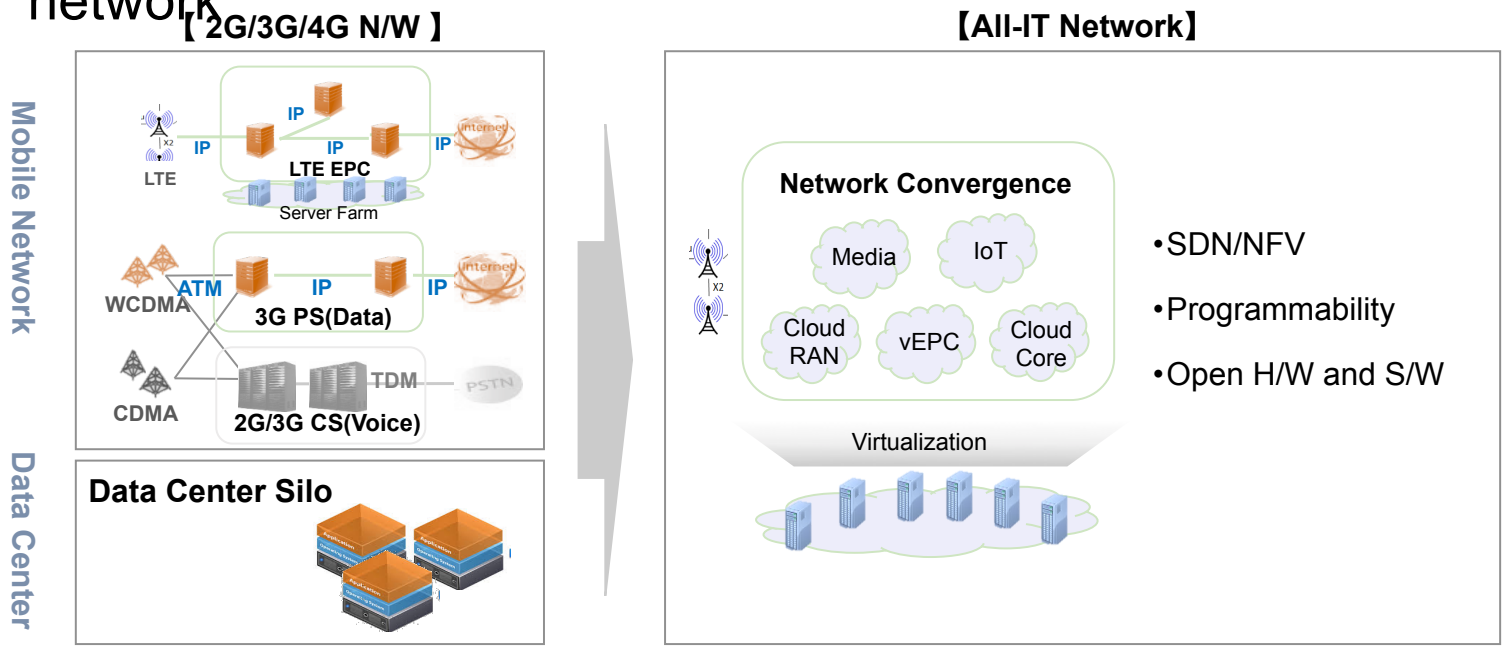
Junho Suh
Manager @SKT

Content

- All-IT Network
- Building All-IT Network with OCP Powered Networking
  - Porting Indigo on Wedge + Open Network Linux (ONL)
  - Porting OpenSwitch on Wedge
  - Lesson Learned & Proposal
- Making Server Switch with OCP technologies

SKT 5G Network Vision

- Evolving a Telcom operator network into an IT convergence network



Agenda

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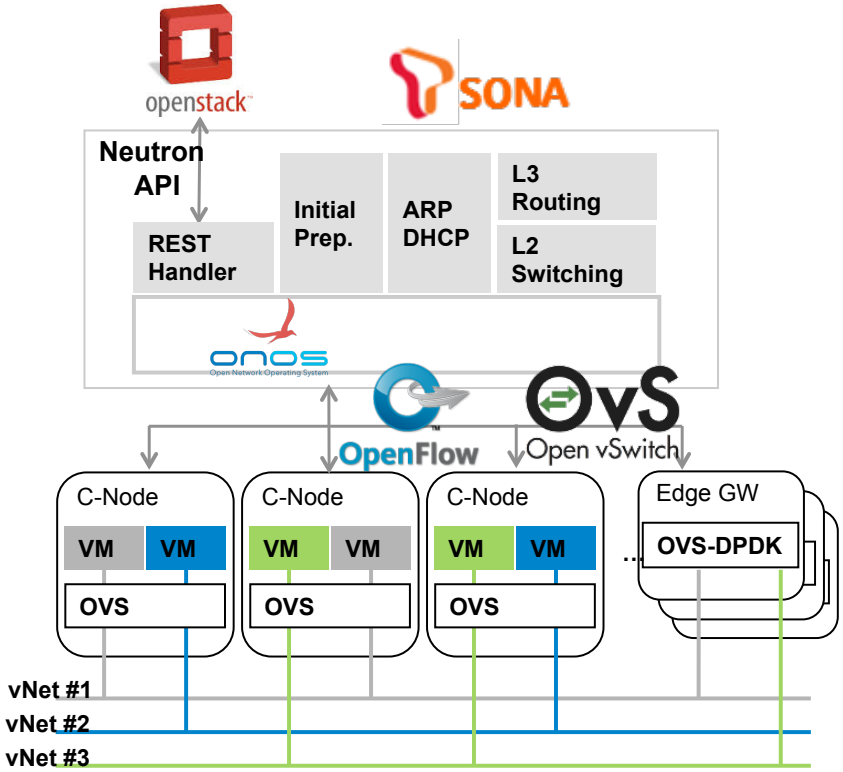
Building Open Networking with OSS

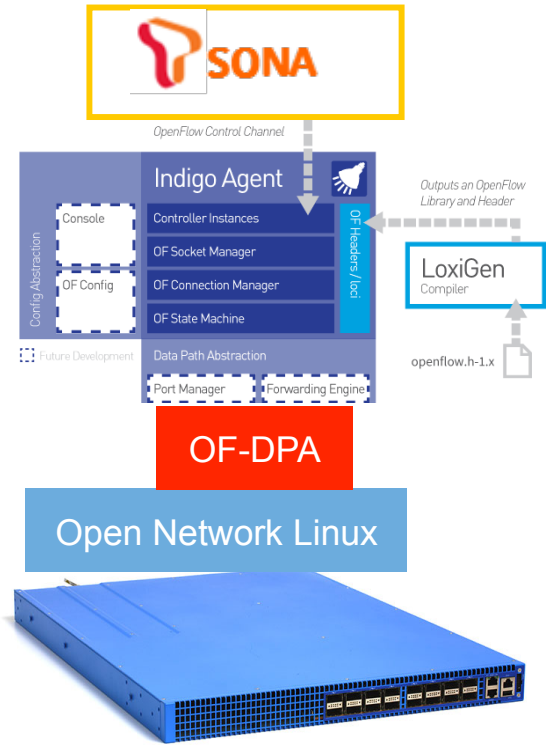


- SONA Simplified Overlay Networking Architecture
  - L2/L3 networking
  - Scalable Edge GW with H/W acceleration
  - OpenStack integration (i.e., Neutron APIs)
  - OpenFlow/OVSDB protocols
- OpenFlow Data Path features
  - Multiple tables
  - Group tables
  - Flow-based metering and QoS control

Making Wedge Switch to support OpenFlow

- Wedge
  - x86 Rangeley CPU board
  - Broadcom Trident2 (via OpenNSL)
  - Open Network Linux (Linux v3.2)
  - FBOSS for forwarding agent

- Porting Indigo on Wedge + ONL
  - Platform independent modules
  - Platform dependent modules



Alternative option - OpenSwitch

- Comparison

	OpenSwitch	Open Network Linux
Build System	Yocto	Debian like build system with Python + Bash
Forwarding Agent	Open vSwitch ▪ L2/L3 networking ▪ OpenFlow 1.3+	FBOSS ▪ L2/L3 networking Indigo ▪ OpenFlow 1.3+
System State DB	OVSDB	FBOSS
SDK Library	OpenNSL	OpenNSL
HAL for Platform	None	ONLP
Configuration model	CLI, REST, Chef, Puppet, Ansible, OVS DB protocol (RFC7047)	Thrift RPC

Dependency in ASIC Kernel SDK

- Porting & rebuilding OF-DPA source code for Wedge platform
  - No source code is available without NDA
  - No information on how much efforts do we need

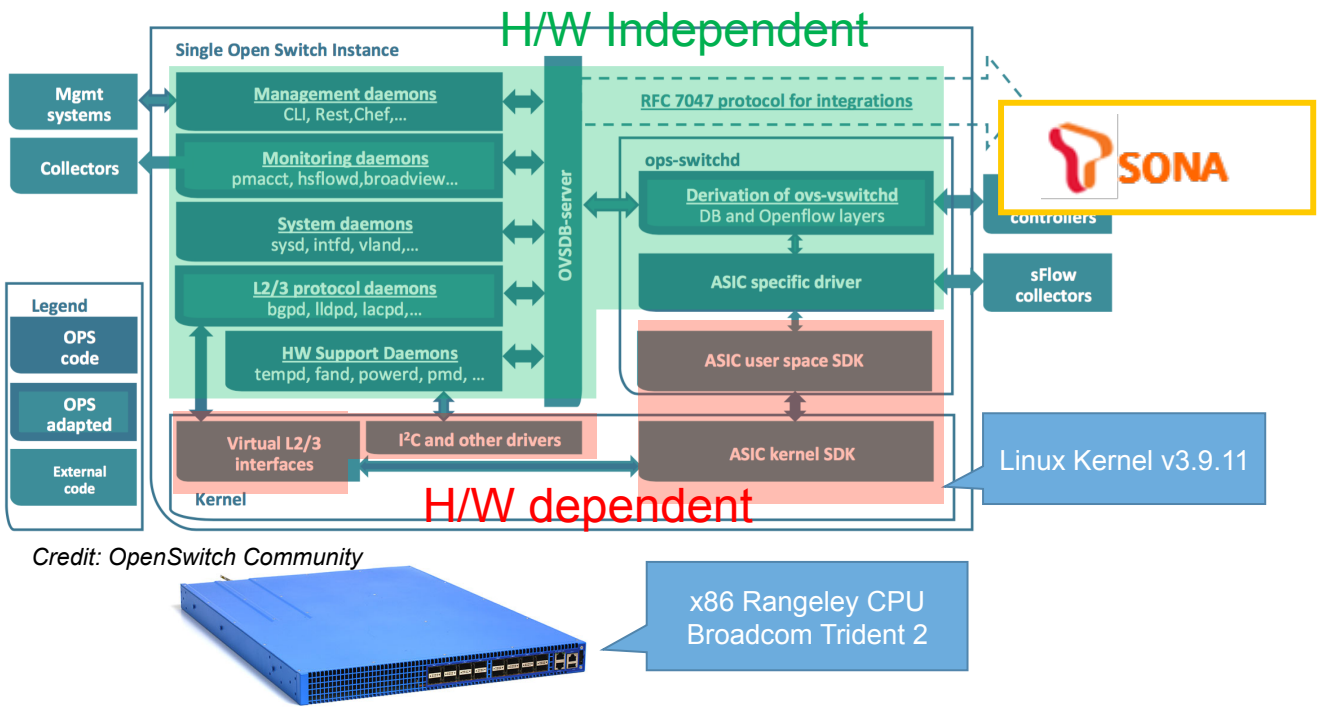
  } Usually vendor does!

- Software pipeline that implements the OpenFlow pipeline

  } Workaround

- Try to implement OF-DPA like functionalities with OpenNSL
  - Port implementation at minimal functionalities is fine
    - E.g., port information, port statistics, …
  - Flow related features can't be implemented, except L2/L3 functions
    - E.g., multiple tables, group tables, flow entry statistics, …

Dependency in Platform



Credit: OpenSwitch Community

Interested in Vendor Agnostic Interface Layer

- A broad spectrum of ASIC chips and platforms we already use
  - ASIC vendors: Intel, Broadcom, …
  - Platforms: Accton, Edge Core, HP, Altoline …
- How do we remove vendor dependencies?
- Vendor agnostic API layer is under review in OCP community
  - SAI
  - ACPI

Call for Collaboration on SAI

- SAI Service Abstraction Interface
  - Still focusing on legacy networking features
  - OpenFlow 1.3+ features
    - Multiple tables
    - Group tables for ECMP like Fabric management
    - Flow-based metering and QoS control for E2E QoS guarantee in future 5G requirement

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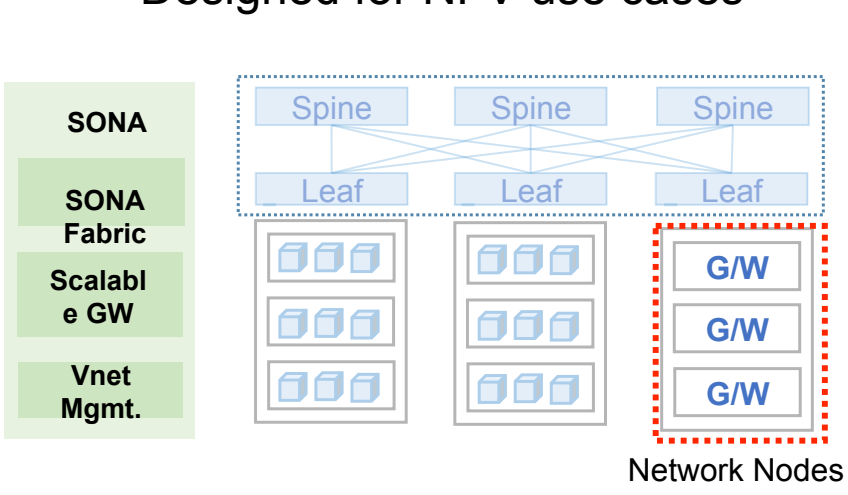
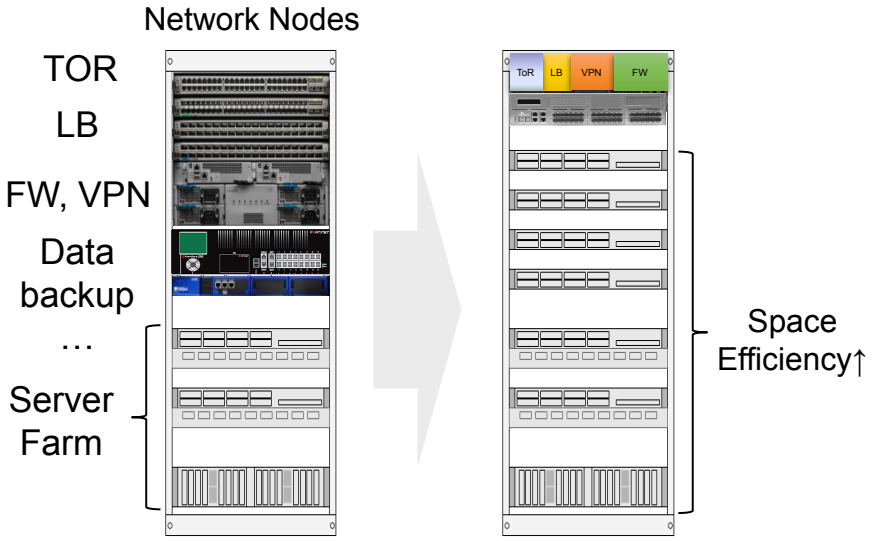
Server Switch Use Case

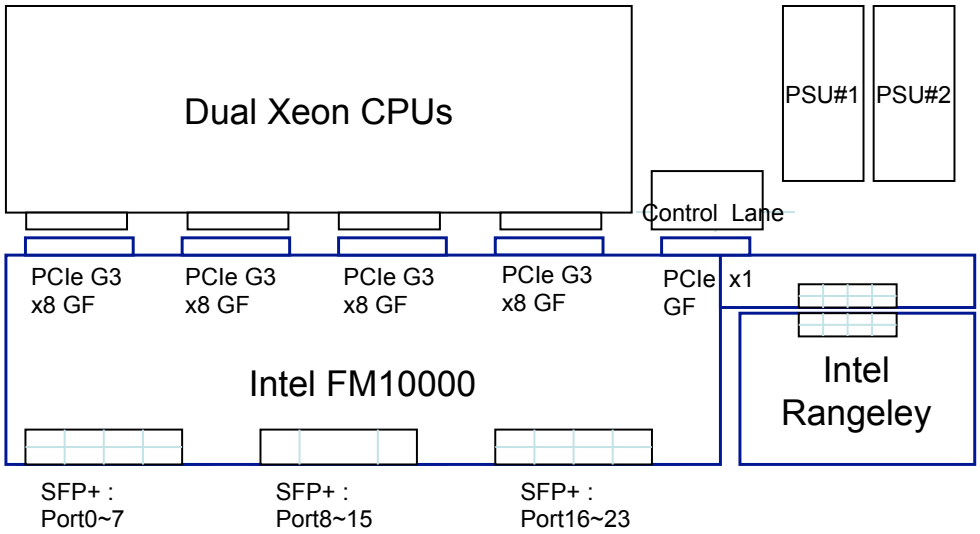
- Replace dedicated network appliance boxes to virtualized network functions
- Designed for NFV use cases





Server Switch H/W Spec

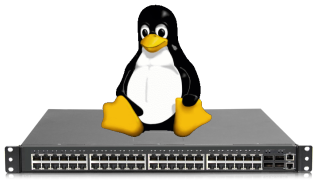
- Server Switch
  - Modular design
  - 2X power supplies
  - Intel Red Rock Canyon (RRC) Switching silicon
    - 4X PCIe G3 x8 (total 200Gbps)
    - x36 1G/2.5G/10G
    - x24 25G
    - x9 40G
    - x6 100G
  - Dual Intel Xeon E5-2600 v3 CPU (Haswell)
  - 4X 2.5` SATA SSD



Testing

- Basics N/W functions
  - L2/L3
  - NAT
  - DHCP
  - DNS
  - N/W Monitoring

Tested!



Open Switch

- NFV features
  - L4/L7 Load Balancer
  - Firewall
  - DDoS Mitigation
  - VPN
  - IDS/IPS
  - N/W SLA Analysis

Need to tes

Future Plan

- ONIE support
- OpenBMC support
- Other ASIC chips support (e.g., Broadcom Tomahawk)

Call for Collaboration / Contribution

- H/W test & validation collaboration
- Use case study
- Contribution

Recap

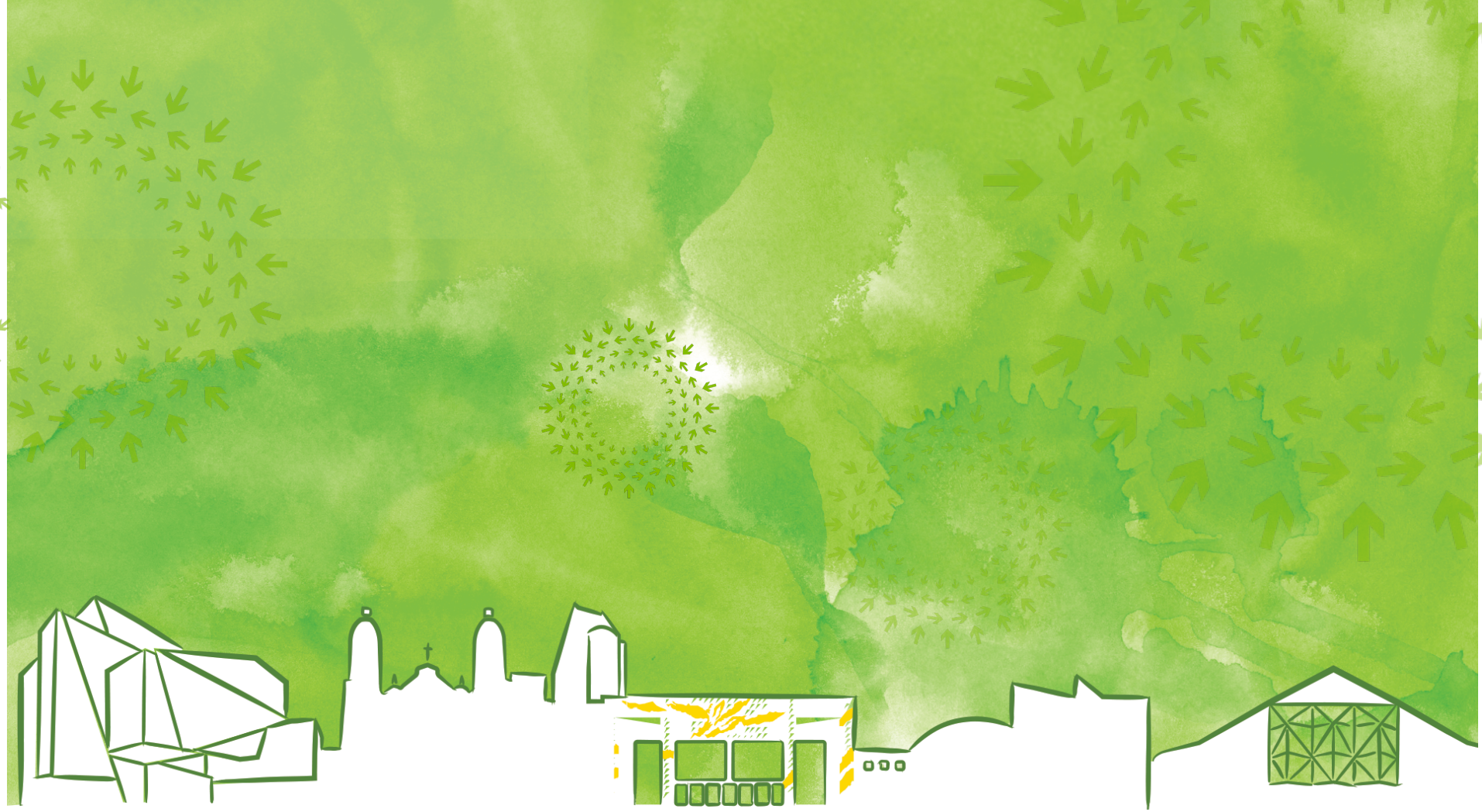
- Vendor Agnostic Interface Layers
  - SAI
  - OF-DPA support

- Want contribution to Server Switch spec

SK telecom

Thanks

junho.suh@sk.com



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