An Introduction to the Open Programmable Infrastructure Project

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The objective of the Open Programmable Infrastructure Project is to foster a community-driven **standards-based open ecosystem** for next generation architectures and frameworks based on **DPU and IPU technologies**.

https://opiproject.org

https://github.com/opiproject























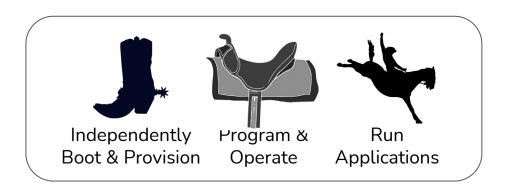


Approach for All Devices

Reduce variation across implementations

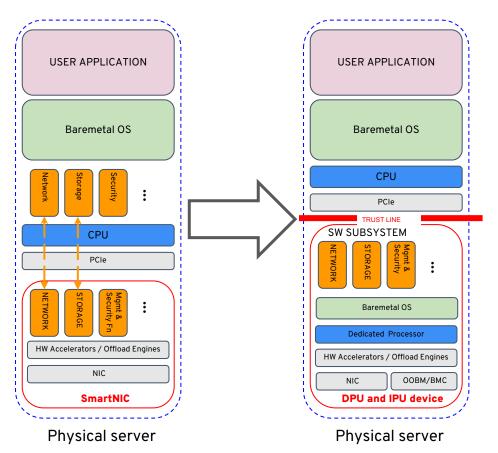
Reuse standard APIs already used on CPUs when it makes sense

Recycle best practices and apply to infrastructure when it makes sense



Infrastructure Transformation





DPU and IPU models

- Offload and Accelerate CPU functions
- Security Air Gap
- Independent infrastructure endpoint



- Device discovery
 - Zero Touch
 - Zero Trust
 - O Inventory
 - Lifecycle & Updates

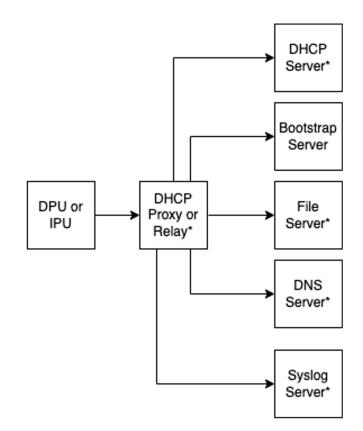
- SHIM layer API
 - Storage
 - Network
 - Security
 - AI/MLI

- Device Monitoring
 - Open Telemetry (OTEL)
 - Metrics
 - D Logs
 - Tracing

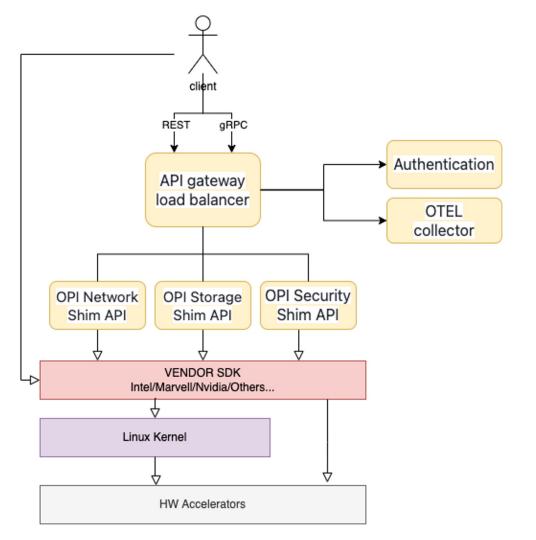
- Developer Platform
 - Real devices & emulation
 - o CI/CD pipeline

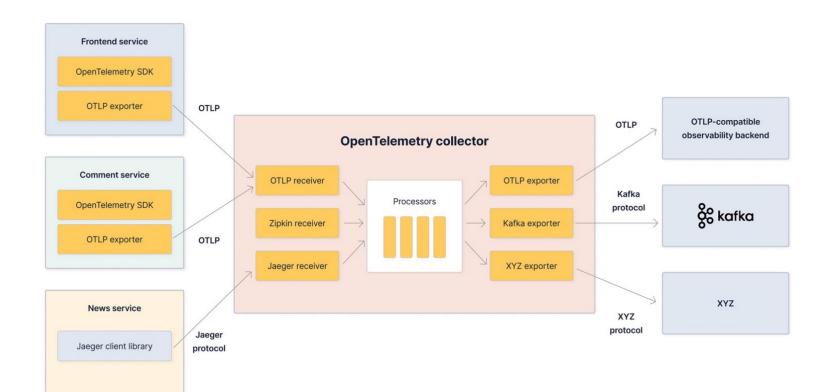
Device Discovery and Provisioning

- Security first (mutual trust)
 - sZTP & FIDO
- Zero-Touch
 - Plug & Play
- Monitoring all the way
 - o OTEL
- Multiple use cases
 - Challenges



Shim Layer API





OTEL

Host CPU xPU CPU OTEL GW Eth SPDK .5 Grafana API gw (kong) Elastic iperf 2/3 Prometheus DHCP client redfish client FIO ZTP client? .10 .7 .8 OTEL collector redfish client Eth Eth HTTPS RPC PROXY openssh-server openssh-server SPDK Storage Target Platform/Host xPU BMC BMC Redfish Server Redfish Server OpenSSHServer OpenSSHServer sZTP bootsrap server DHCP client DHCP client HTTP(s) Eth Eth Images hosting file server

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Developer Platform