

FUTURE **TECHNOLOGIES** SYMPOSIUM

OCP Global Summit

November 8, 2021 | San Jose, CA

Telemetry / Diagnostics Remote Service Model

Panos Christeas, Leandro Silva

Production Engineer(s), Facebook



Concepts of Telemetry

Formal definition: extraction of measurements **across** some distance / boundary Usage:

- reliability + availability (continuous flow, complete)
- fault analysis (upon event; after), remote debugging, follow-ups, RMA
- failure prediction



Telemetry challenges

Simple (linear), small-scale

- all sensors (readings) bundled
- synchronous (regular time)
- assume device == host == server, autonomous
- "consumer" has a-priori access to full bundle

Up-scaled (non-linear)

- multiple, heterogeneous readings (in size, time, type)
- too much data (need to compress)
- events beyond one unit (correlate across machines)
- aggregates, variable detail level but able to re-visit, drill-down
- anonymize, filter, re-bundle
- cross the (legal) entity barrier!



Operational Model





Diagnostics

- Bi-directional communication with owned machines
 = telemetry + actions
- A Procedure
- Online/synchronous
- Offline/asynchronous
- Scripted
- Intrusive / lightweight
- Traceable, Reasoned

- standard **agent**
- workflow language
- comm. protocol
- peering agreement(s)= profiles
- result format : telemetry



Data model

- Designed for bulk (batches)
- Simple (like JSON)
- Extendable, generic

Envelope (standardized)

- timestamp
- domain / profile
- location = address

Payload (freeform)

- like content from Redfish
- timeseries, in batch
- configuration values



Summary / roadmap

- Complexity when crossing the owner's boundary
- Respect existing monitoring, complement them vs. replace
- Keep format generic, simple

Q3 2021: telemetry data format, use cases

Q2 2022: diagnostics definitions, draft specs









DCP FUTURE TECHNOLOGIES SYMPOSIUM

2021 OCP Global Summit | November 8, 2021, San Jose, CA