TELEMETRY AND MONITORING 2.0

PROPOSAL DISCUSSION

OCP SAI

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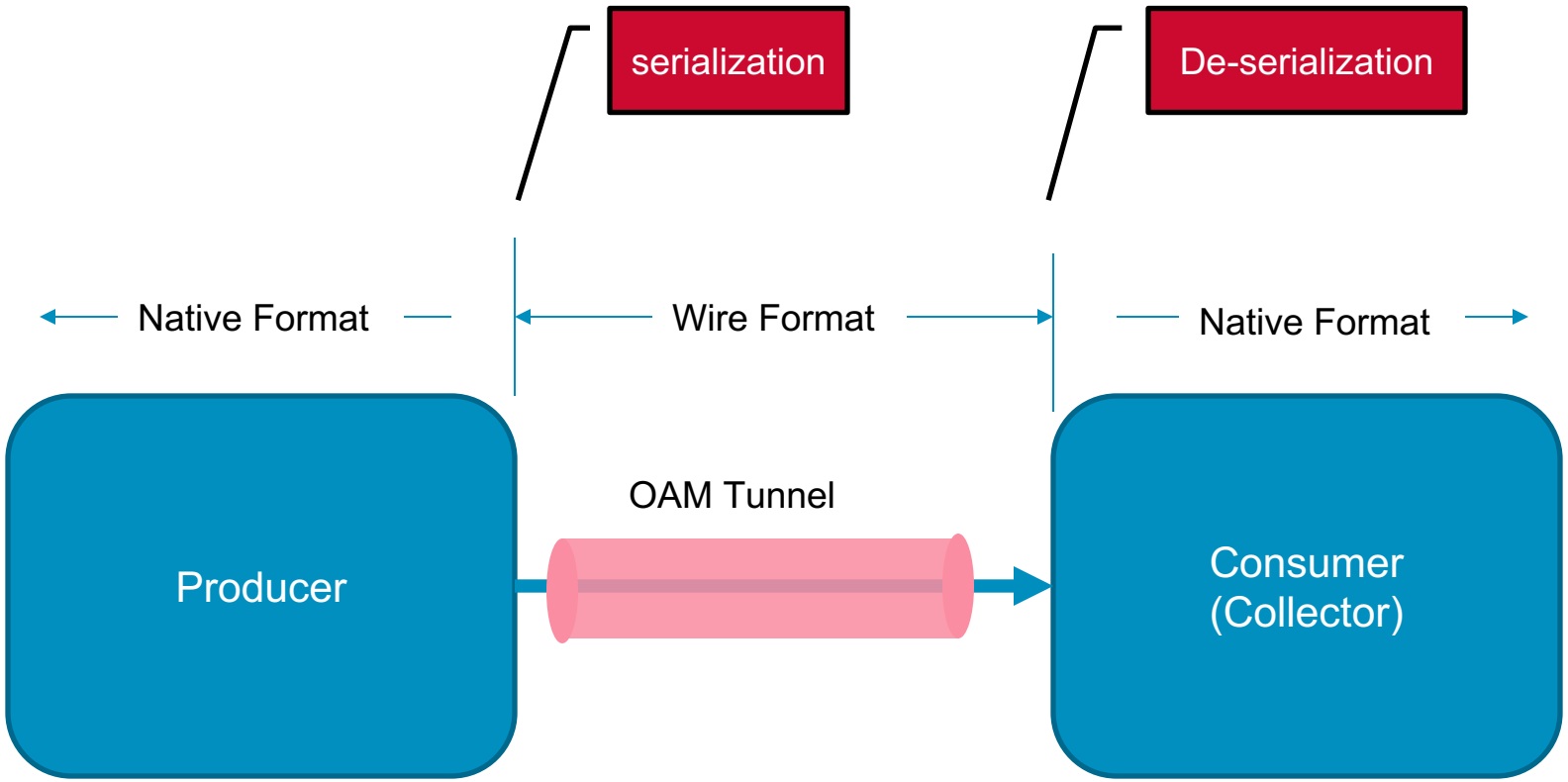
Agenda

- Introduction
  - Streaming Telemetry
  - Inband Telemetry
- Requirements
- TAM 2.0 API Design
- Status
- Q&A

Introduction - Streaming Telemetry



- Correct Object
- Efficient (Space and Time)
- Language Interoperable
- Easy to Use
- Statefull Vs Stateless

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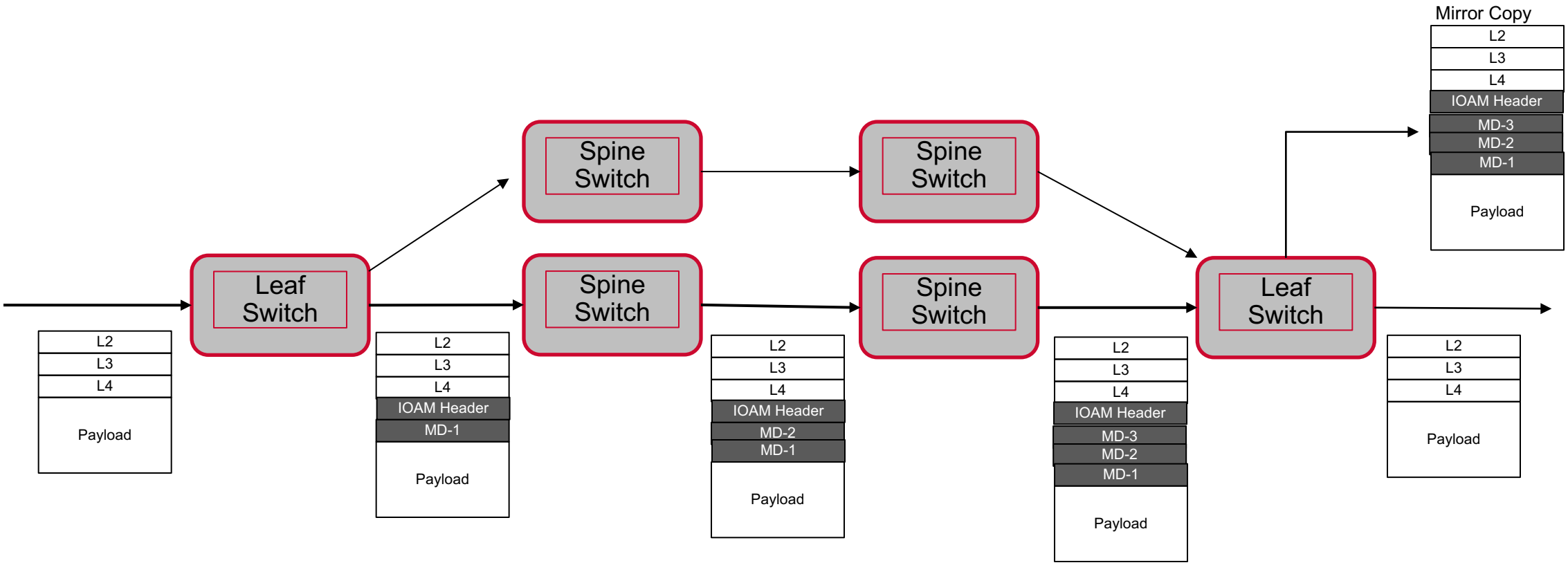
Introduction - Inband Telemetry

- Per Packet Network Path
- Per Flow Network Path



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Data Plane Telemetry – Broad Domain

- Rich set of data and events exist in data plane
- Scope of data is different and can be categorized in following classes
  - ✓ Per Packet Data
  - ✓ Per Flow Data
  - ✓ Per Switch Data
  - ✓ Per Networking Element Data
  - ✓ Per Network Path Data
- Data collection and reporting frequency requirements are different
- Transport requirements are different
  - ✓ Stateful vs Stateless
  - ✓ In-band vs Out of band
- Data reporting mechanism – MUST satisfy all classes of data

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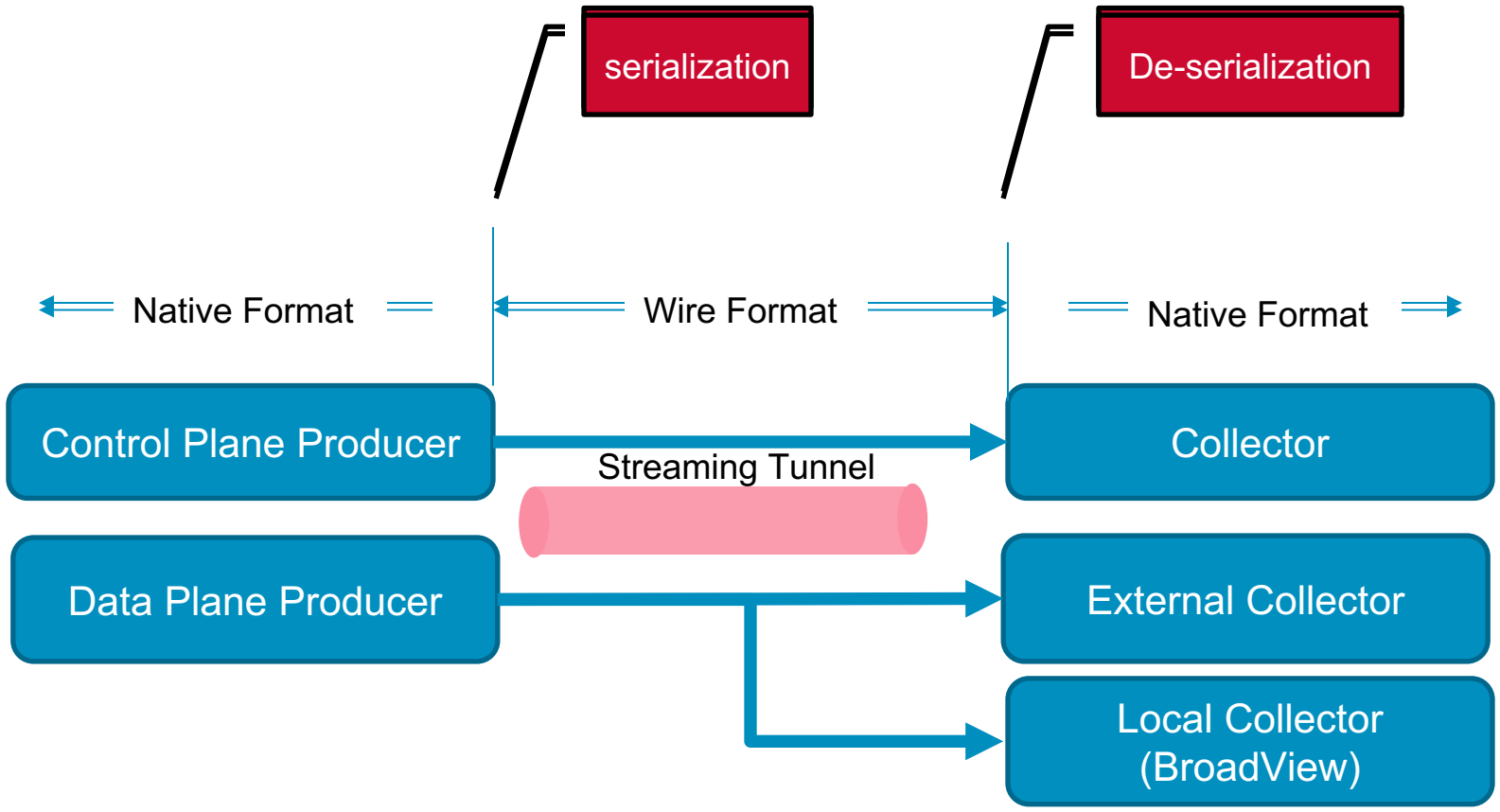
MSDC Requirements



- Simplicity
  - SoC Feature
- Scaling
  - Decoupled Streaming
  - Data Plane Independently
- Inband Streaming
  - Subscription
  - Publication
- High Frequency Monitoring (< 1us)
- Flexible data encoding
  - Proto
  - Thrift
- Flexible transport
  - UDP
  - TCP
  - gRPC

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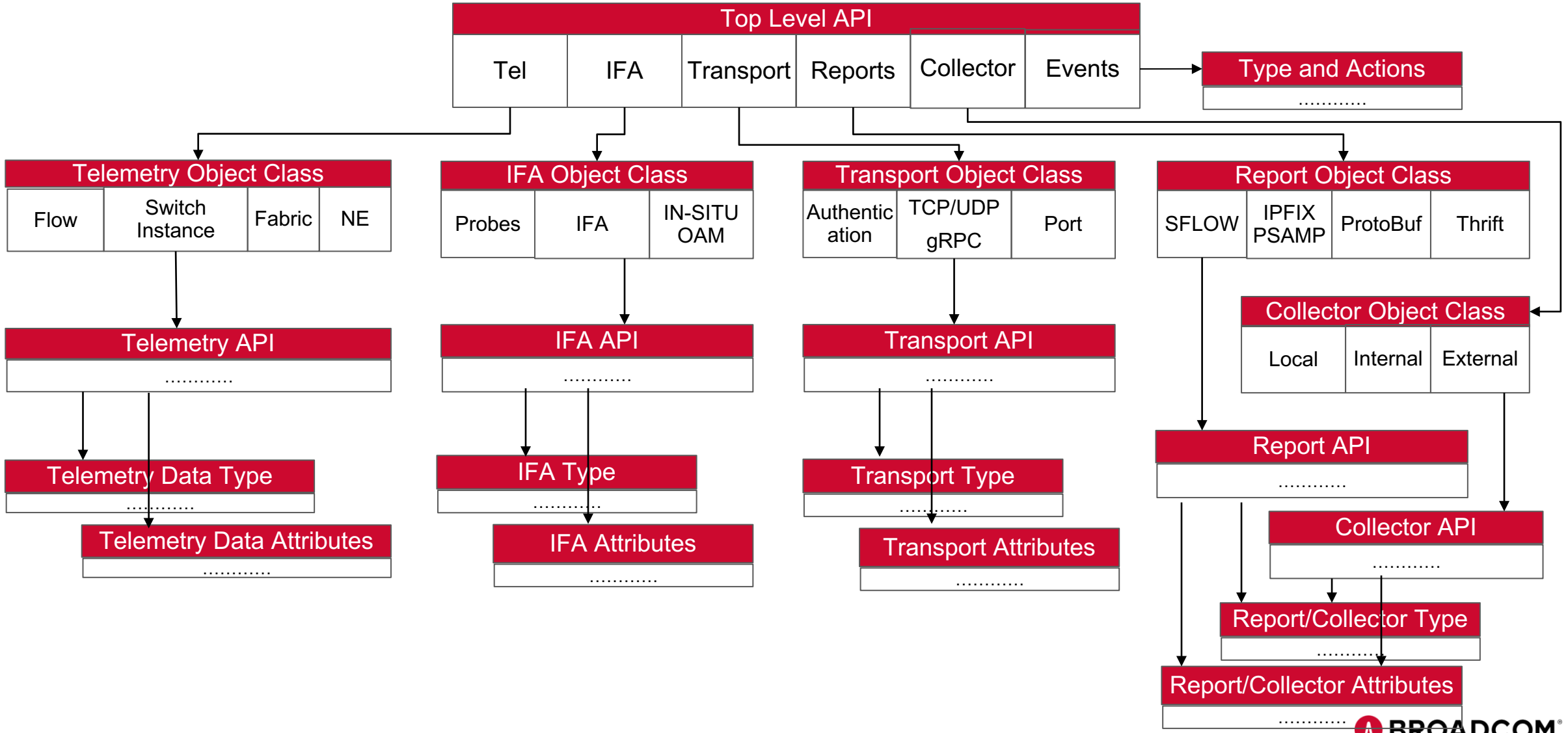
SAI API Requirements

- Generic TAM Objects
  - Telemetry Streaming object is a collection of data, transport, report and collector
  - All telemetry data is characterized in single consistent way
- Generic Reporting
  - Data serialization used to parametrize a report
  - Reporting object consists of serialization protocol
  - Serialization/Deserialization is done the protocol compiler
  - Seamlessly consumed by collector
- Generic Event Framework
  - All events are a collection of event type and action
  - Event action can be report or a feedback loop
- Mixed vendor deployment
  - No chip specific API
  - Telemetry object, report types, or events are extensible and agnostic to chip implementation
- Advanced analytics
  - Thresholding, triggered streaming (threshold breach)
  - Running average/mean/mode

SAI TAM 2.0 API Set



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SAI TAM 2.0 Status

- GitHub pull request complete
- First Draft of API header files with metadata check committed
- Examples and document commit pending
- Open for review

https://github.com/opencomputeproject/SAI/pull/793

Q & A