

# INTUITIVE

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June 10-14, 2018 • Orlando, FL

#CLUS



# DevNet Workshop- Nexus Streaming Telemetry

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DevNet-2899

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# Cisco Spark

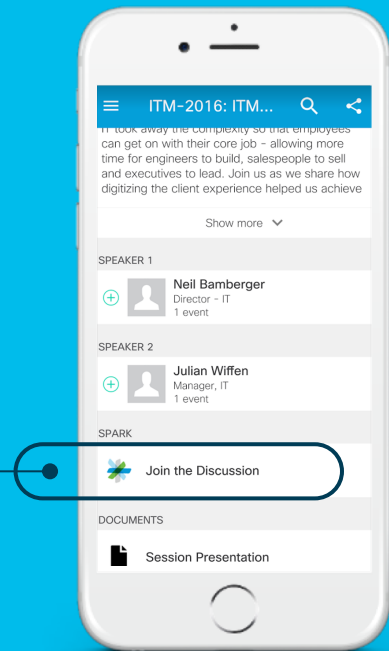
## Questions?

Use Cisco Spark to chat with the speaker after the session

## How

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Cisco Spark spaces will be available until June 28, 2018.

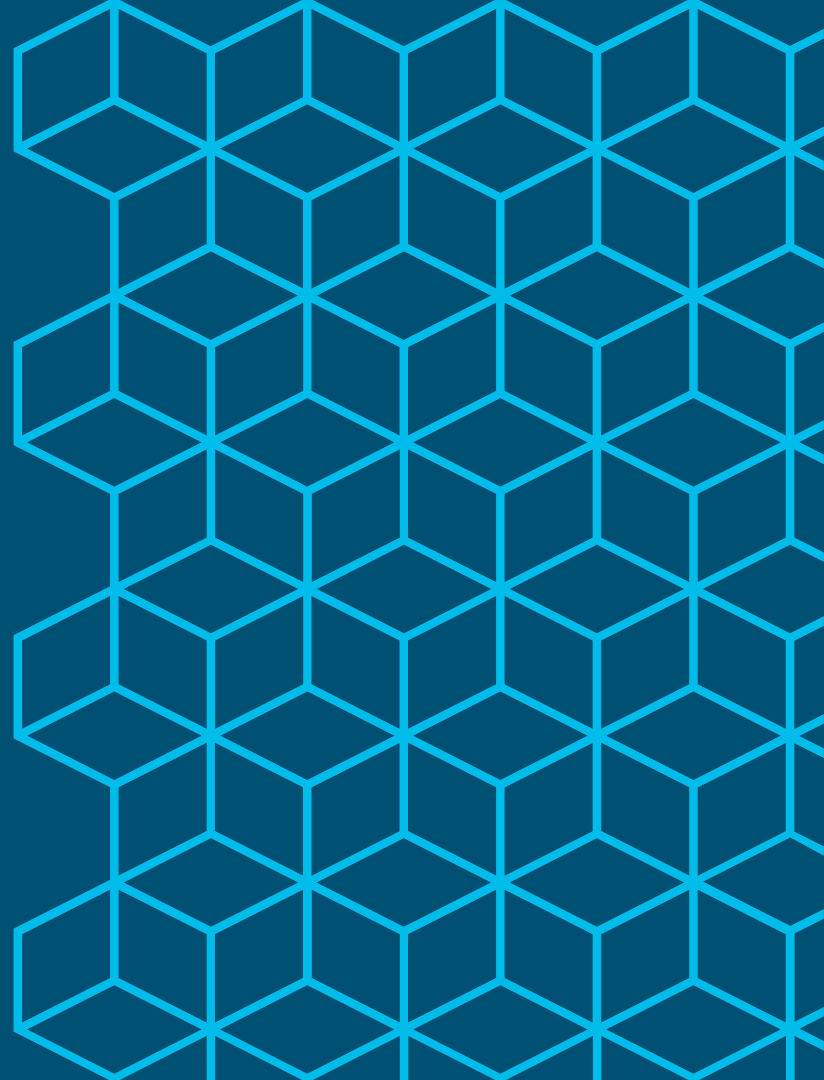


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# Agenda

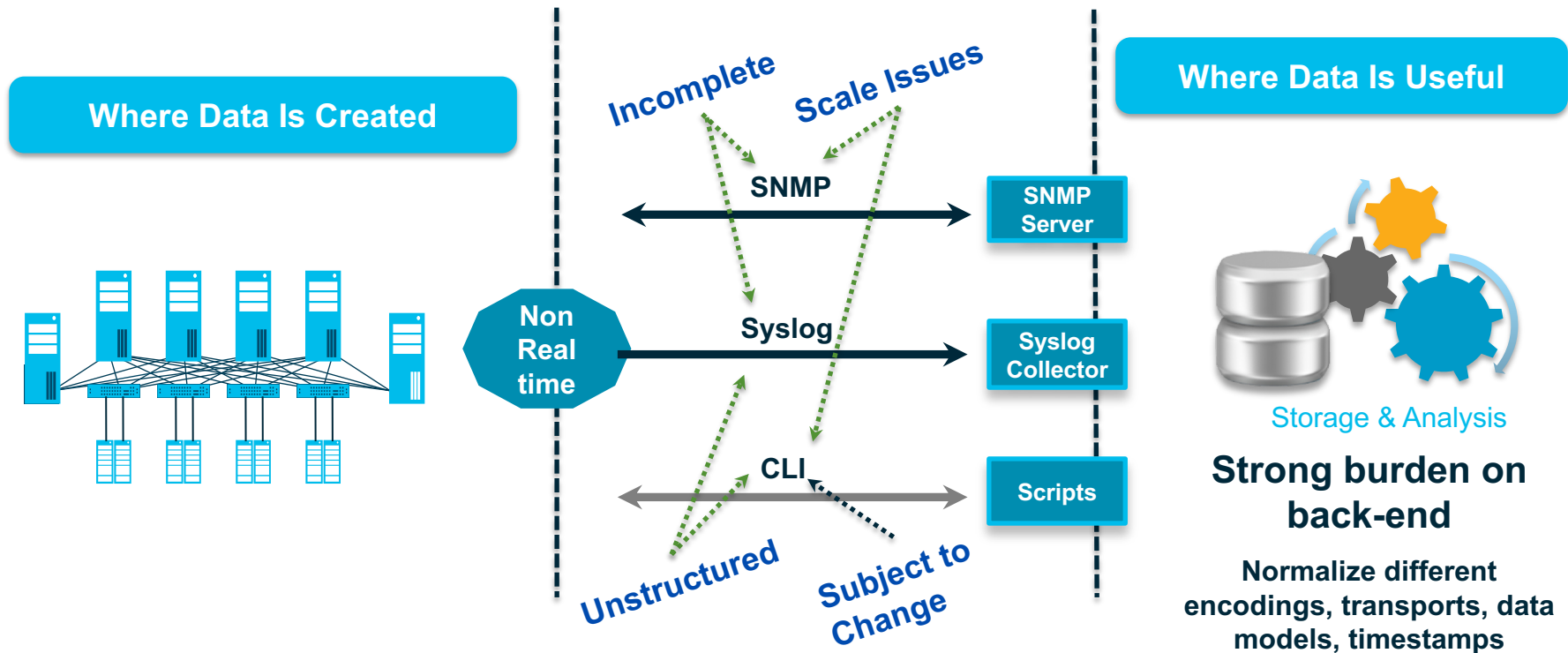
- Introduction to Telemetry
- Data Center Use Cases
- Formats and Transports
- Consumption and Display
- Lab/Demonstration
- Q&A

# Introduction to Telemetry



# Traditional Monitoring Is Showing Its Age

## Not Suited for Modern Network and Security Operations



# Data Center Use Cases for Telemetry

## Availability

- Interface/Link Status
- Data Plane Statistics
- Environmental Monitoring
- Protocol State

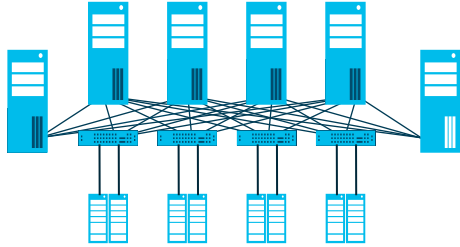


## Network Operations

- Hotspot Detection & Congestion Monitoring
- Buffer Utilization
- Queue-Level Microburst Detection



# Telemetry Workflow



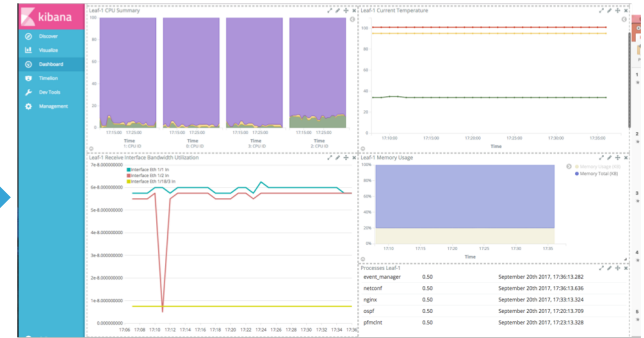
## COLLECT

Rich network data including Flow Level data, Buffer depth, Interface data, Environmental information



## FIX

Fix real time issues and get insight into historic trends and errors



## PREDICT

Predict network issues before they occur



Network Data

0100101100010111001  
00101011001011000

Storage &  
Analysis



Alerting &  
Insights



# Formats And Transports

# Transport Options

## gRPC

- Modern, open source RPC framework
- Low latency, scalable, distributed
- Enables extension such as authentication, load balancing, logging and monitoring etc



## HTTP

- Ubiquitous transport option
- Many available open source stacks on multiple operating systems
- Well understood in industry

HTTP

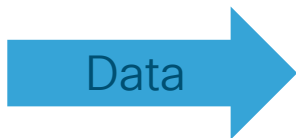
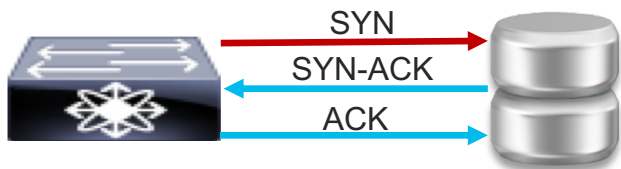
## UDP

- Connectionless transport
- No upper-layer overhead

UDP

# Transport Options

## Dial Out



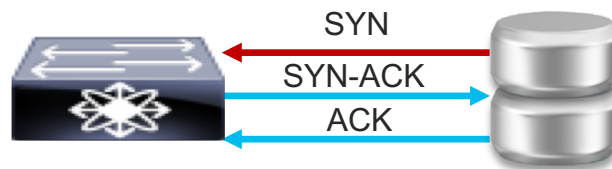
gRPC: 7.0(3)|5(1)

HTTP: 7.0(3)|5(2)

UDP: 7.0(3)|7(1)

Supported

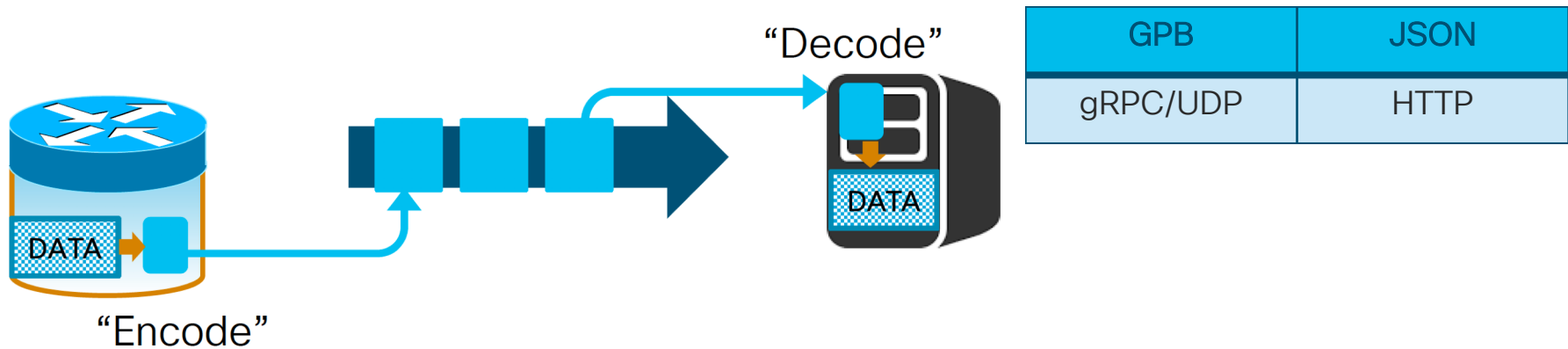
## Dial In



gNMI: 9.3.1

Planned

# Encoding



Encoding (or “serialization”) translates data (objects, state) into a format that can be transmitted across the network. When the receiver decodes (“de-serializes”) the data, it has an semantically identical copy of the original data.

# NX-OS Software Telemetry

- Streams DME object data and/or CLI output from NX-OS control plane.\*
- Encryption supported across all transports
- Provides visibility to counters, protocol state, environmental info, etc. collected from switch control plane
- Not designed for very high frequency export (intervals measured in seconds)



\*Native YANG support coming in 9.2.1

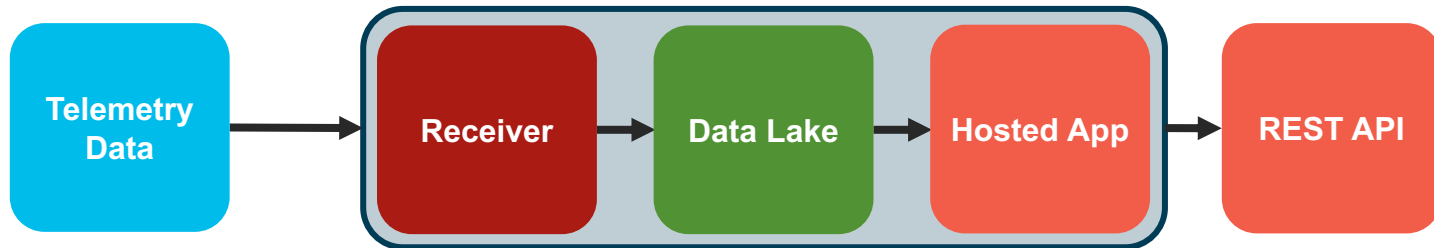
# Consumption and Display

# Telemetry and Analytics Deployment Models

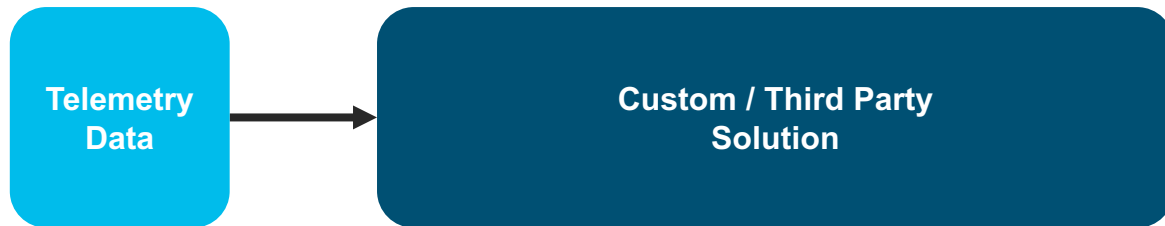
Nexus 9000

DCNM

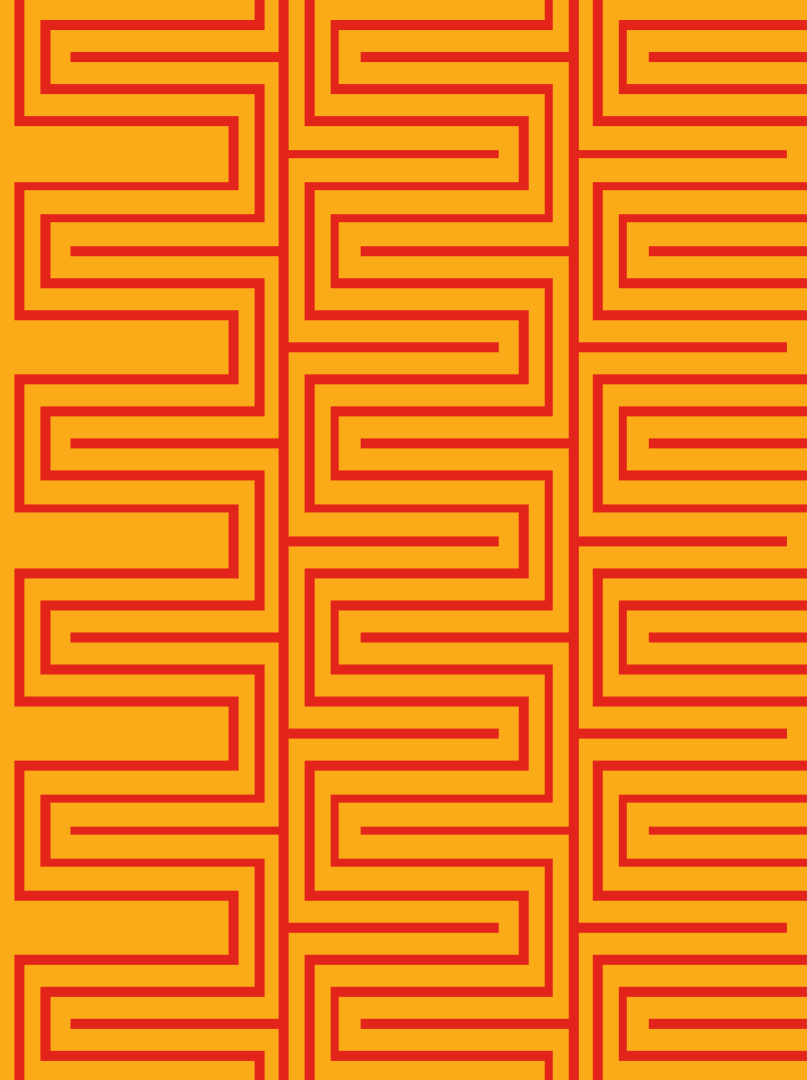
Cisco Turnkey



Custom /  
Third Party



# Lab/Demonstration





# Cisco Spark

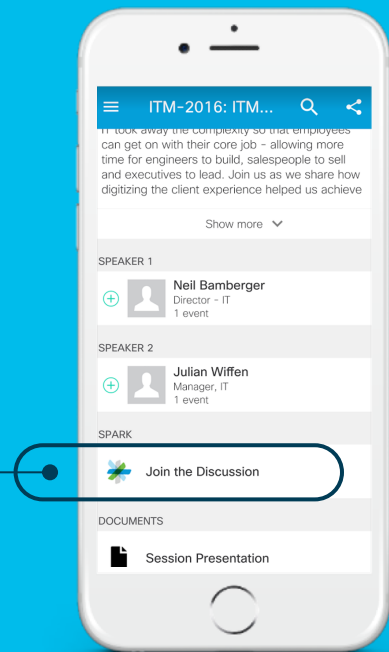
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Thank you



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