PTP Management & Media
Flow Monitoring For All-IP Infrastructures

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INTRODUCTION

Our company: Skyline Communications
- established in 1985, independent
- headquartered in Izegem, Belgium
- global presence (19 international sites)
- 300+ employees
- acknowledged expert in e2e monitoring & orchestration

Our product: DataMiner
- multi-vendor off-the-shelf NMS & OSS platform
- monitor, control, orchestrate
- 6000+ systems deployed
- 5500+ drivers to interface with products from 600+ vendors
PTP – a protocol, not a signal

PTP standard makes some assumptions:
- no packet delay variation (PDV)
- no assymetry (internal assymetry, transmission assymetry)
- timestamps are perfect

Mechanisms to alleviate these sources of errors:
- create timestamps in hardware
- use QoS to prioritize PTP traffic
- chose between BC, TC, E2E, P2P, correct timing intervals, etc.. to optimize the precision of time at the endpoint

But nothing is perfect.
PTP – common sources of error

configuration issues (grandmaster, boundary clock, slave)
- BMCA settings
- messaging rate intervals
- communication mode (unicast, multicast, mixed)

device issues
- grandmaster, boundary clock failure
- loss of external reference
- badly implemented BMCA, PTP master election process

network issues
- missing event messages
- corrupted event messages
- increased packet delay variations (PDV)
- network asymmetry
- multicast issues

automate PTP configuration

monitor & control PTP environment
Automated PTP Provisioning

- automatically detect ANY new PTP aware devices (IS-04 / proprietary protocols) – FUTURE PROOF
- automatically extract e2e PTP topology (LLDP)
- apply standard PTP settings/profiles to ANY grandmaster, switch, slave device
- compare PTP configurations
- define and apply “golden” configurations

dataminer
infrastructure discovery and provisioning
360° PTP Monitoring & Control

- monitor every single PTP metric on all PTP grandmasters, PTP masters, PTP slaves
- monitor PTP performance (e.g. PTP offset, PTP mean path delay)
- monitor PTP multicast-traffic (network packets as well as switch tables)
- apply PTP security workflows (e.g. block PTP slave devices to never become a master)
- integrate network analyzers
PTP Overview
PTP Topology
PTP Comparison
PTP Details
PTP Performance Data
Media Flow Tracking

- network is a shared & non-linear medium (vs single SDI cable)
- complex switch fabrics (vs single SDI router)
- multiple ST2110 essence streams (vs single SDI signal)
- SDN controllers talk to plenty of end points (vs single SDI router)
- broadcast and SDN controllers still use “classic” SDI router protocols

what if the BC-controller panel shows a connection but the screen stays black?
Media Flows - Sources Of Error

Controller
- wrong DB entries (initial setup, device replacement, IS-04 querier issue)
- BC-controller and SDN controller DBs are out of sync

Source
- source not active, not streaming
- wrong IP(s) or multicast transmit address(es)

Network
- IGMP join / leave issues
- static multicast issues
- source specific multicast issues
- oversubscription (ghost streams)

Destination
- IGMP join not sent
- wrong multicast receive address(es)

track your media flows in real-time
DataMiner Media Flow Tracking

- read crosspoint status from SDN controller
  “where are all my flows supposed to be?”
- check this status versus the real-time situation
  “where are my flows in reality?”
- detect the flows which are there but should not be there

gather real-time information from source to destination
„crawl“ through the network
Start With The Source
Resolve Topology
Check Destinations
Drill Down To Details
Stream Issue Example
SUMMARY

MONITOR AND MANAGE YOUR PTP INFRASTRUCTURE WITH CARE

TRACK YOUR UNCOMPRESSED MEDIA FLOWS IN REAL-TIME

GO FOR TRUE E2E SDN ORCHESTRATION RATHER THAN SDN CONTROL

monitor control orchestrate
Thank You!
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