IP SHOWCASE™ THEATER

CURATED BY VSF VIDEO SERVICES FORUM

PTP Management & Media Flow Monitoring For All-IP Infrastructures

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Skyline Communications

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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

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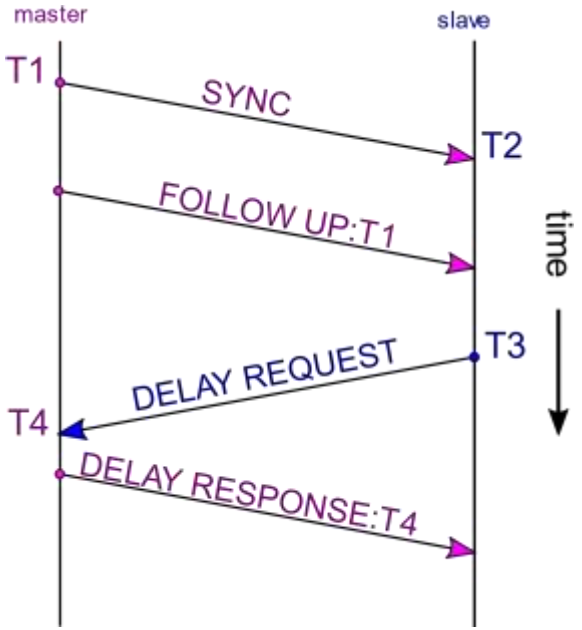
PTP – a protocol, not a signal

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

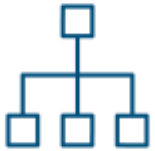
configuration issues (grandmaster, boundary clock, slave)

- 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

→ automate PTP configuration



network issues

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

→ monitor & control PTP environment

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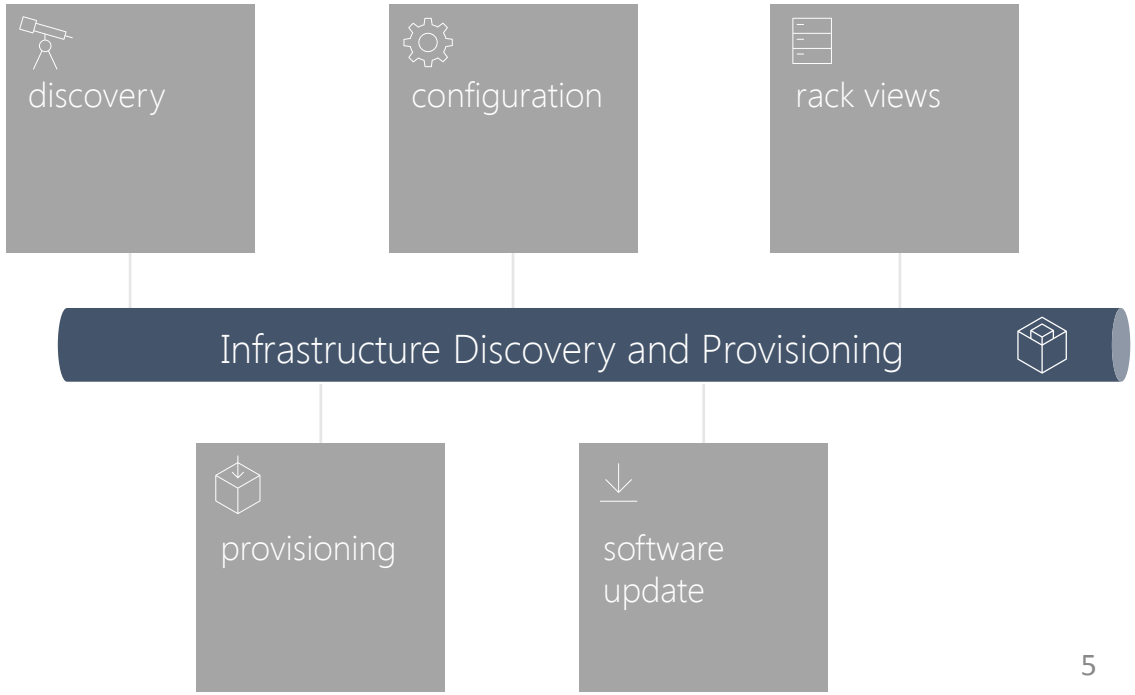
Automated PTP Provisioning

- 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



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infrastructure discovery and provisioning

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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

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monitoring & control

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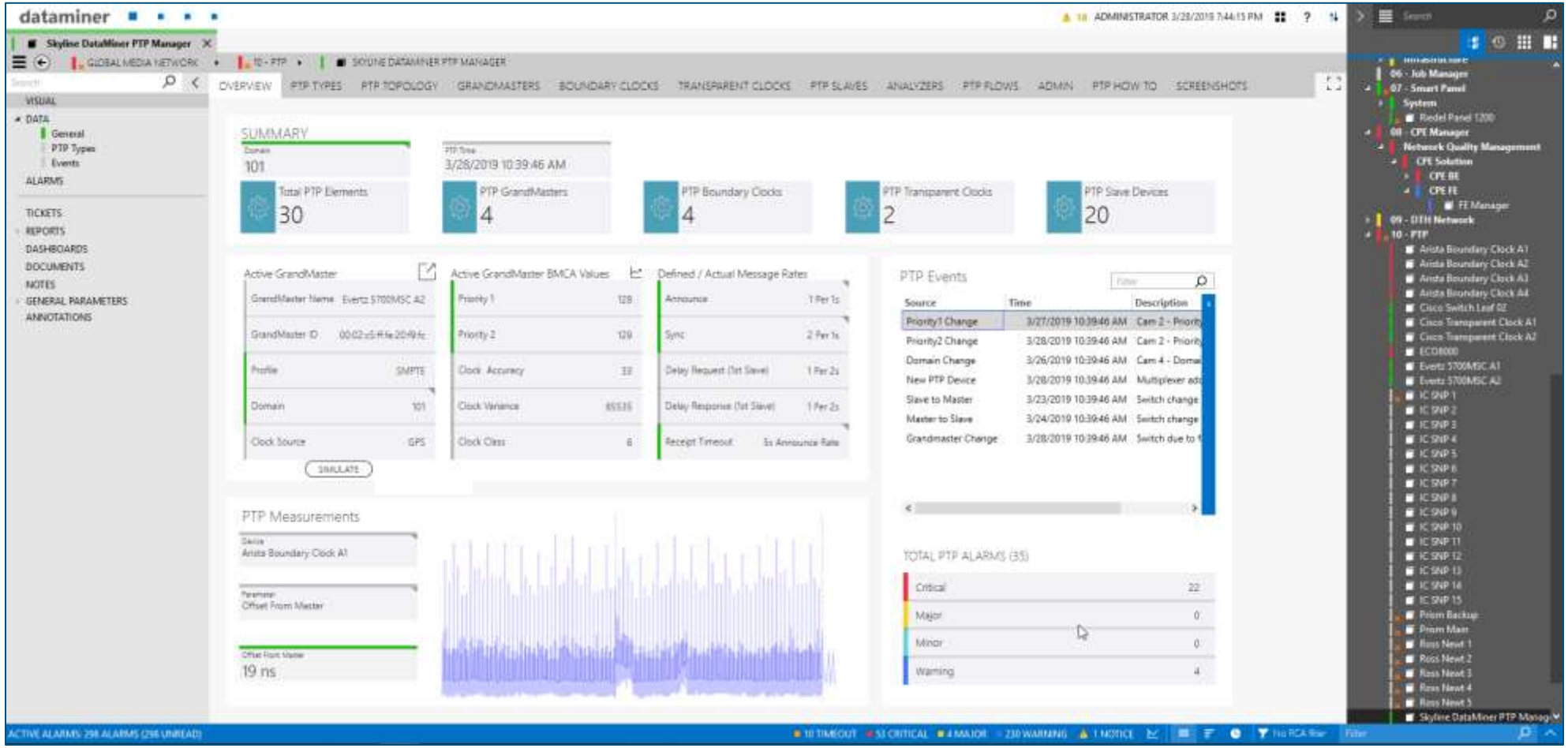
PTP Overview



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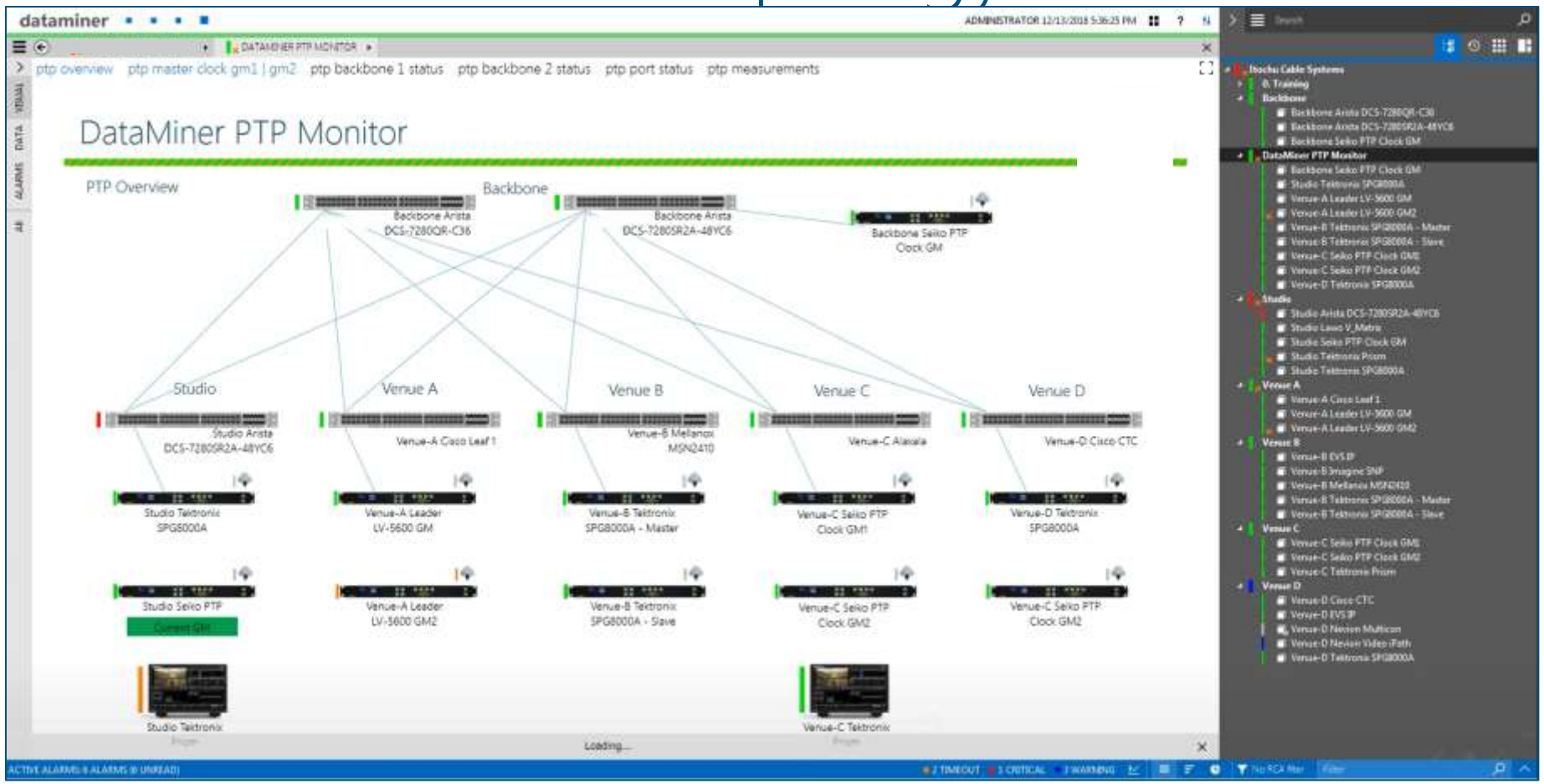
PTP Topology



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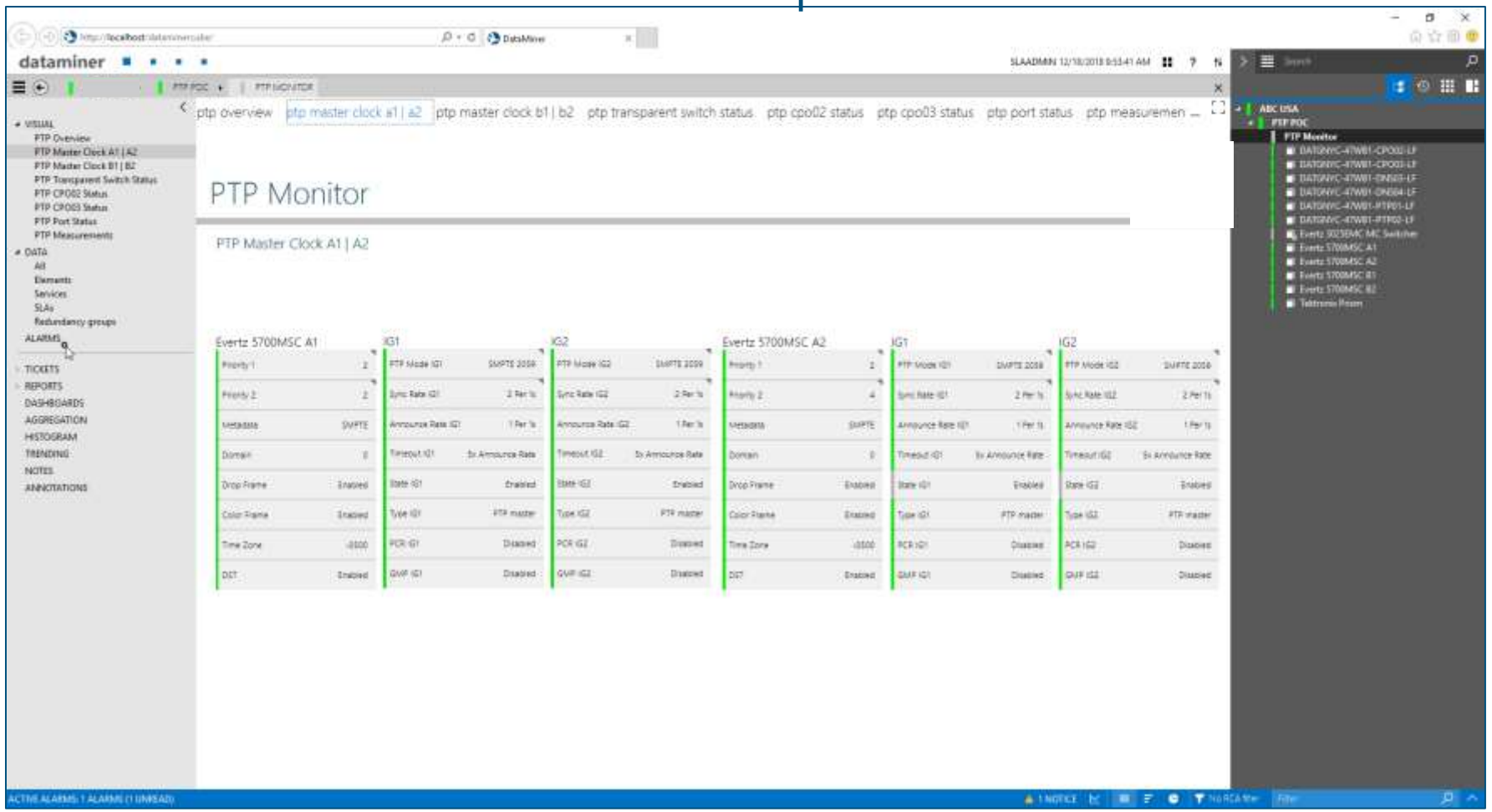
PTP Comparison



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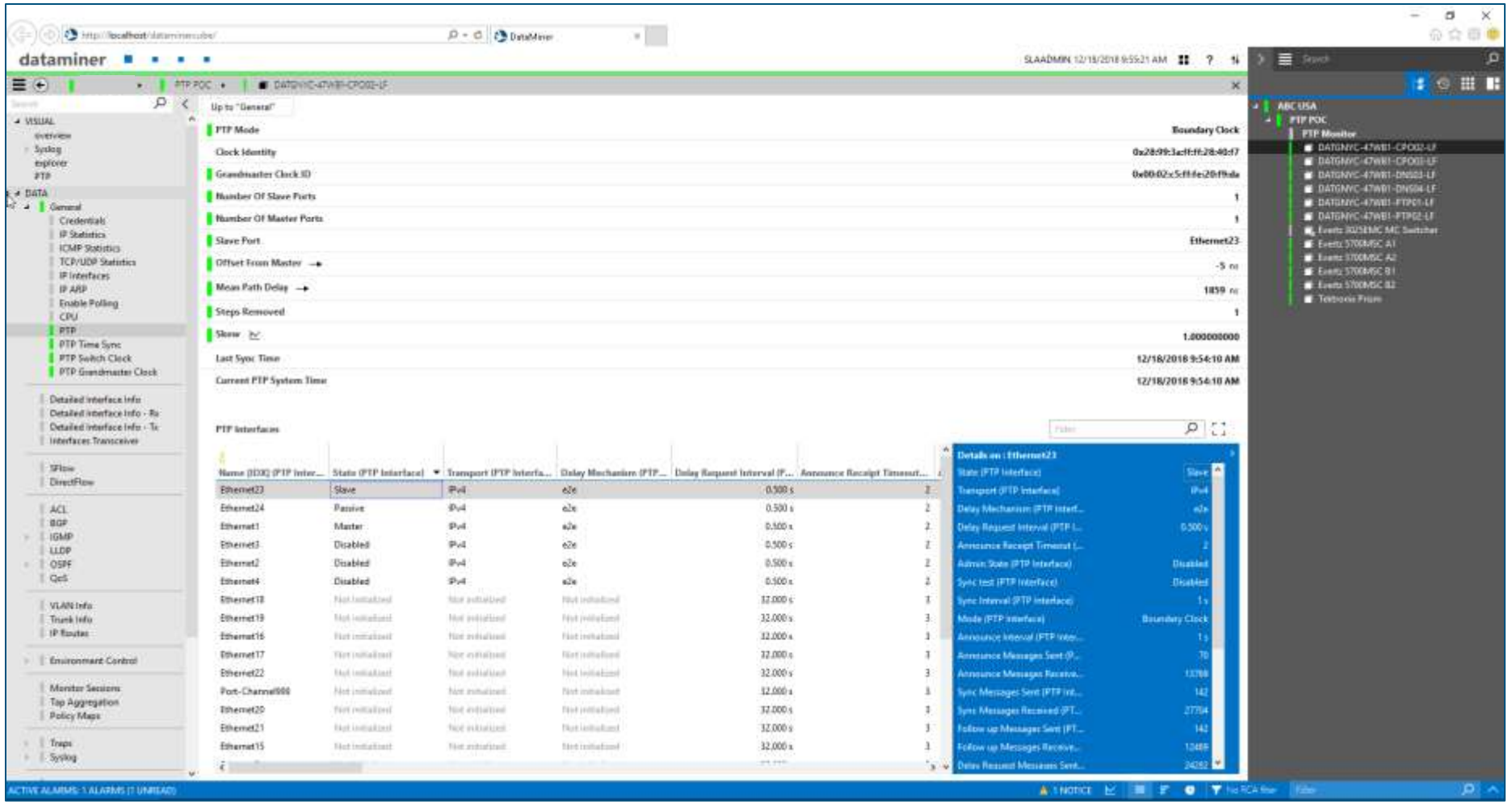
PTP Details



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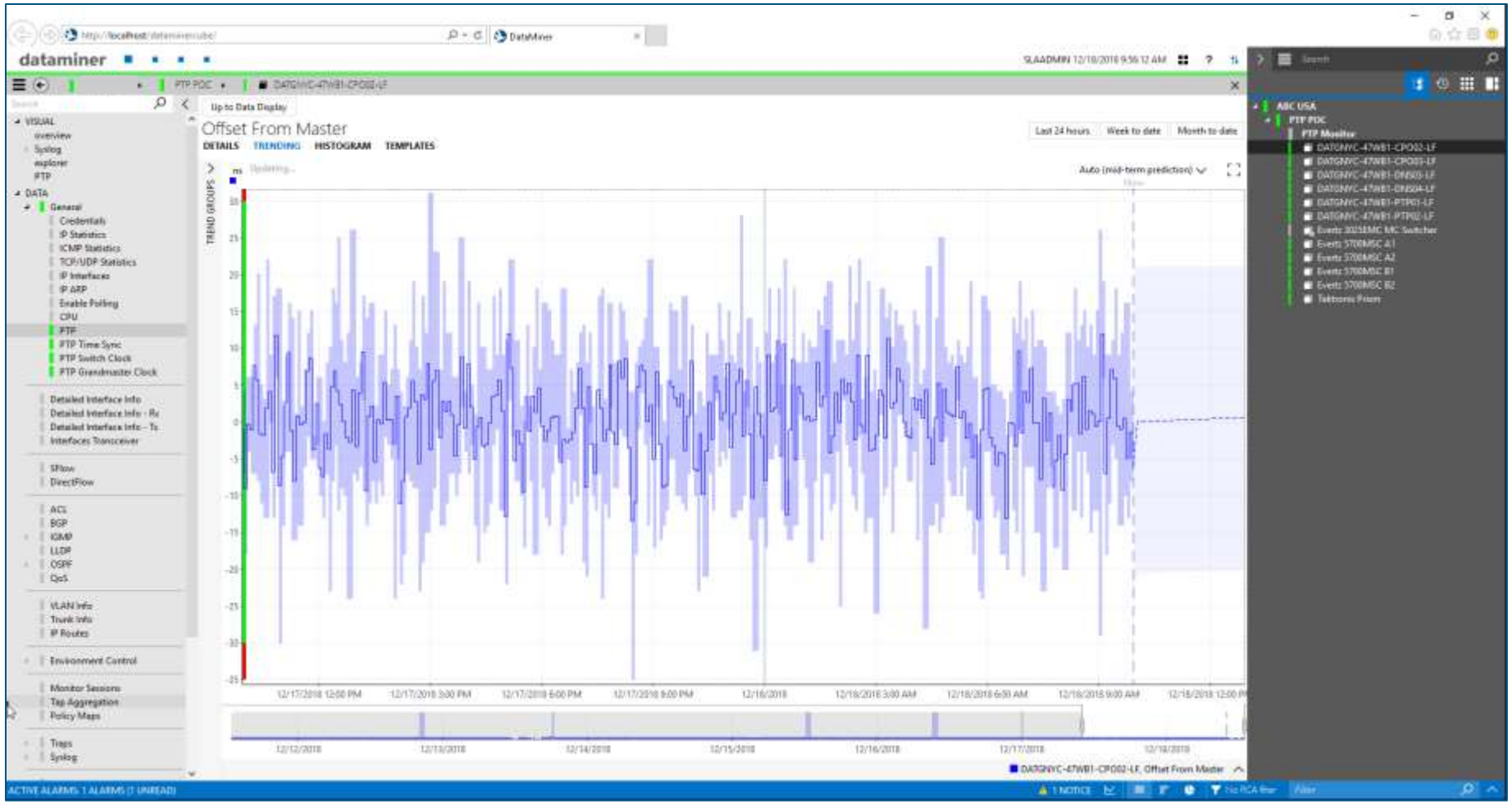
PTP Performance Data



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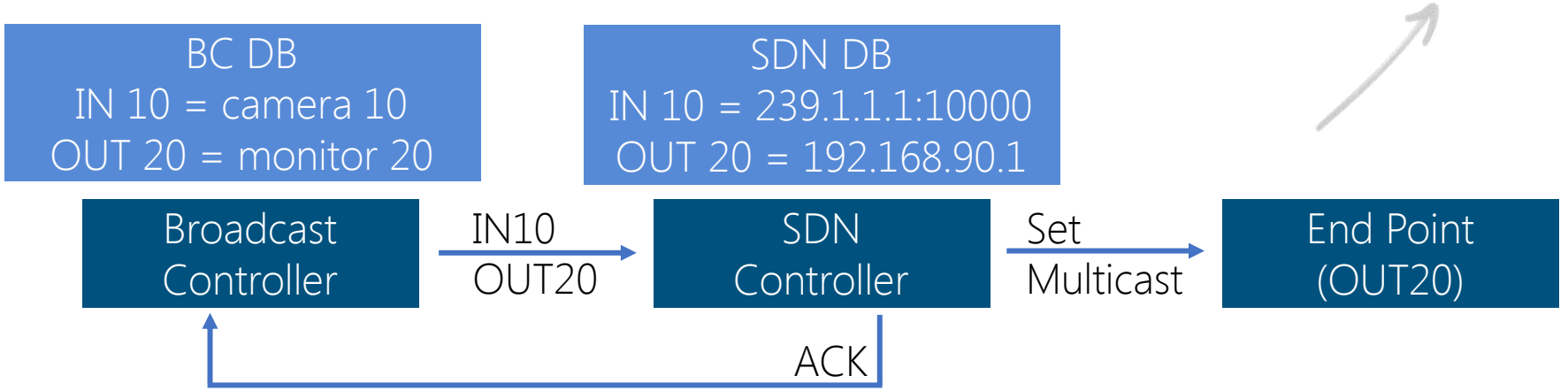
Media Flow Tracking

- 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

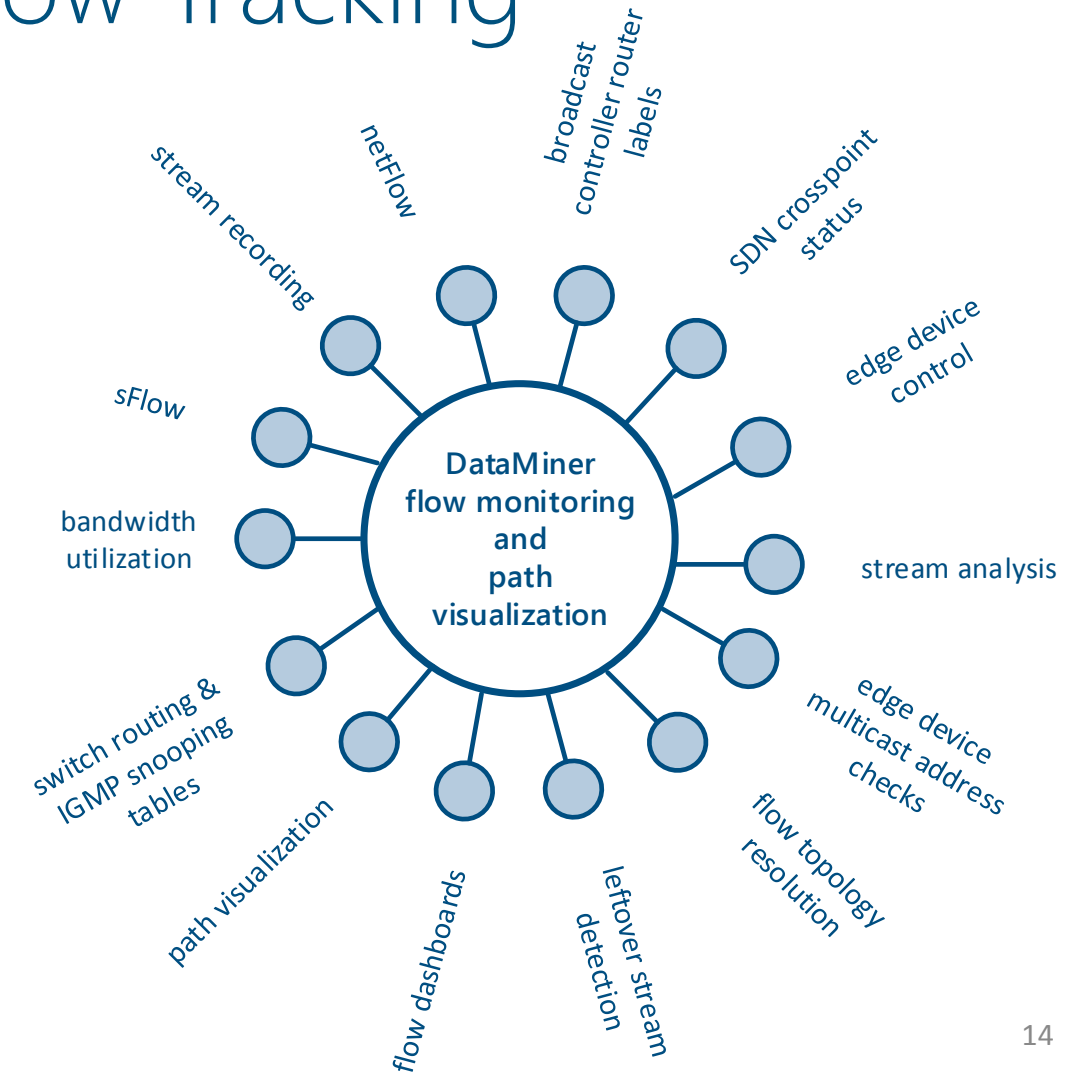
DataMiner Media Flow Tracking

- 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



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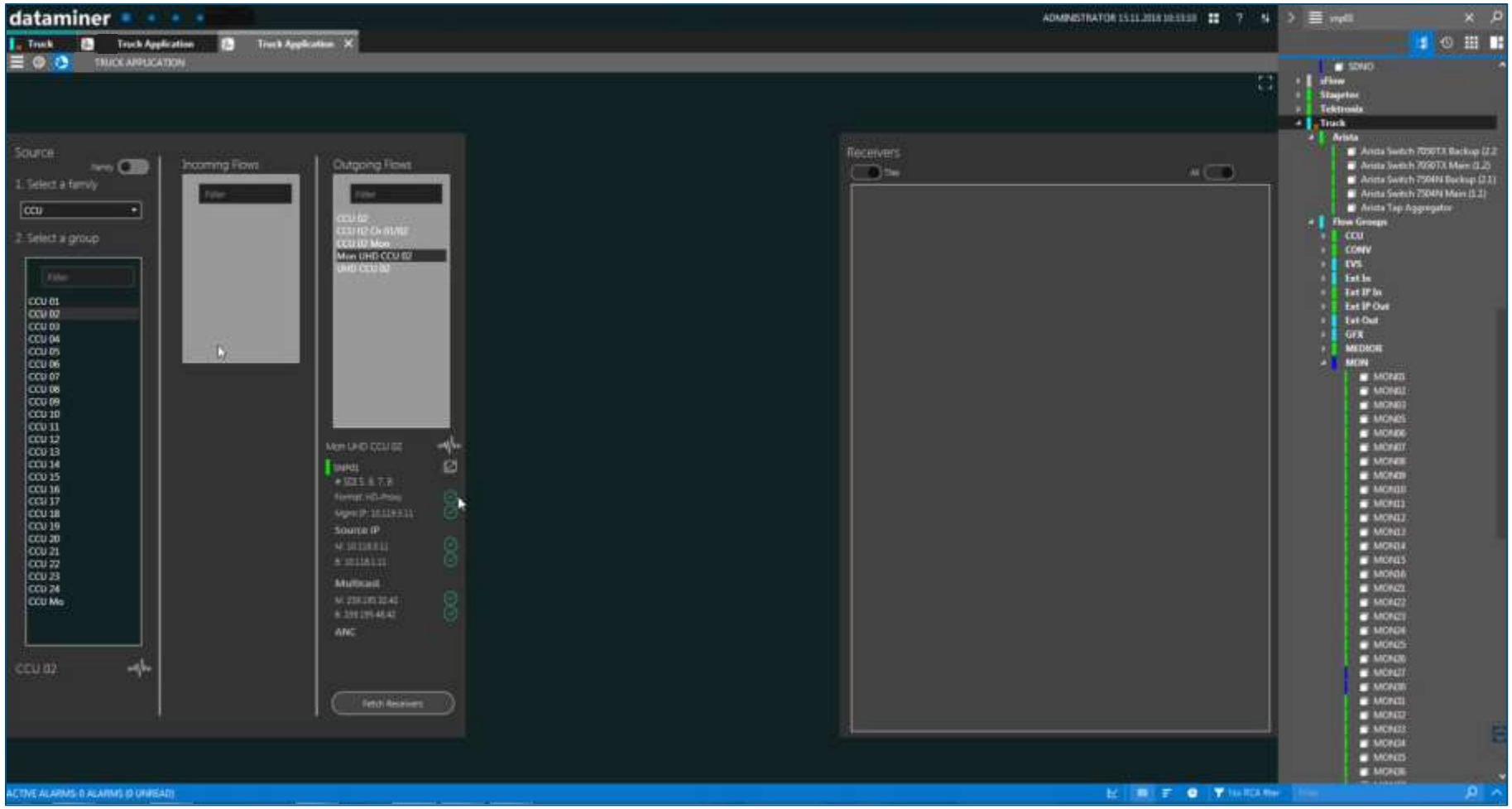
Start With The Source



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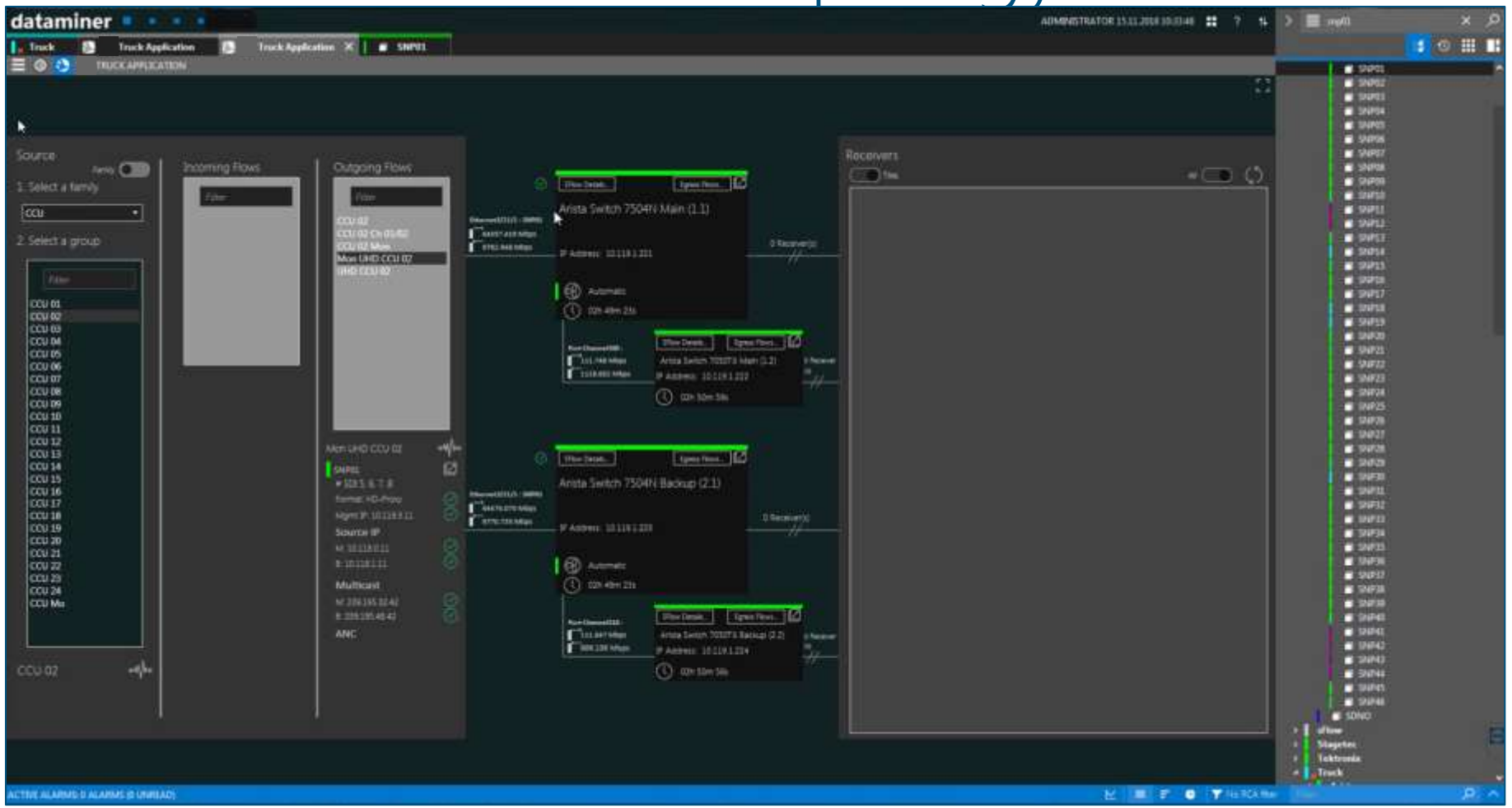
Resolve Topology



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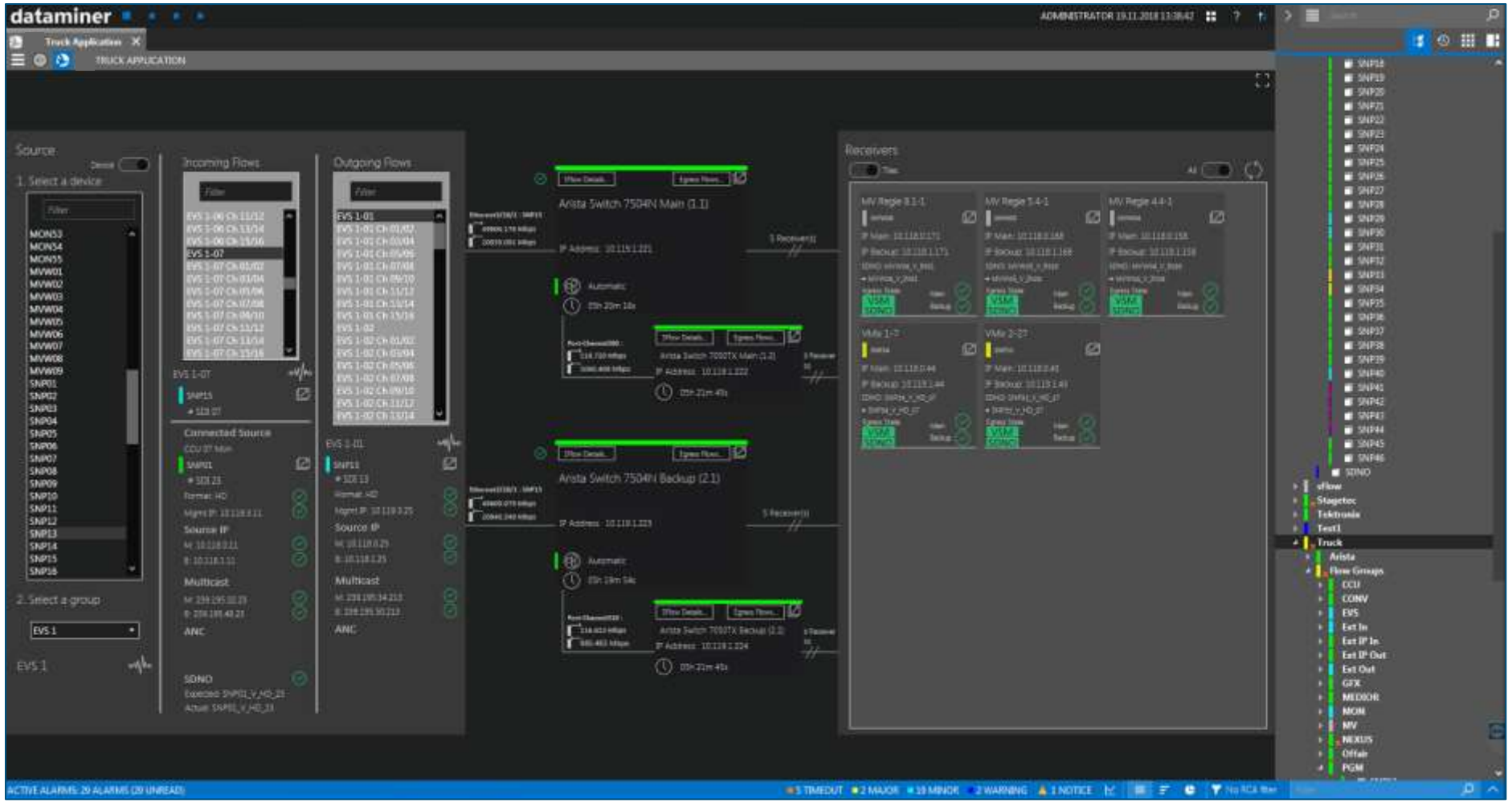
Check Destinations



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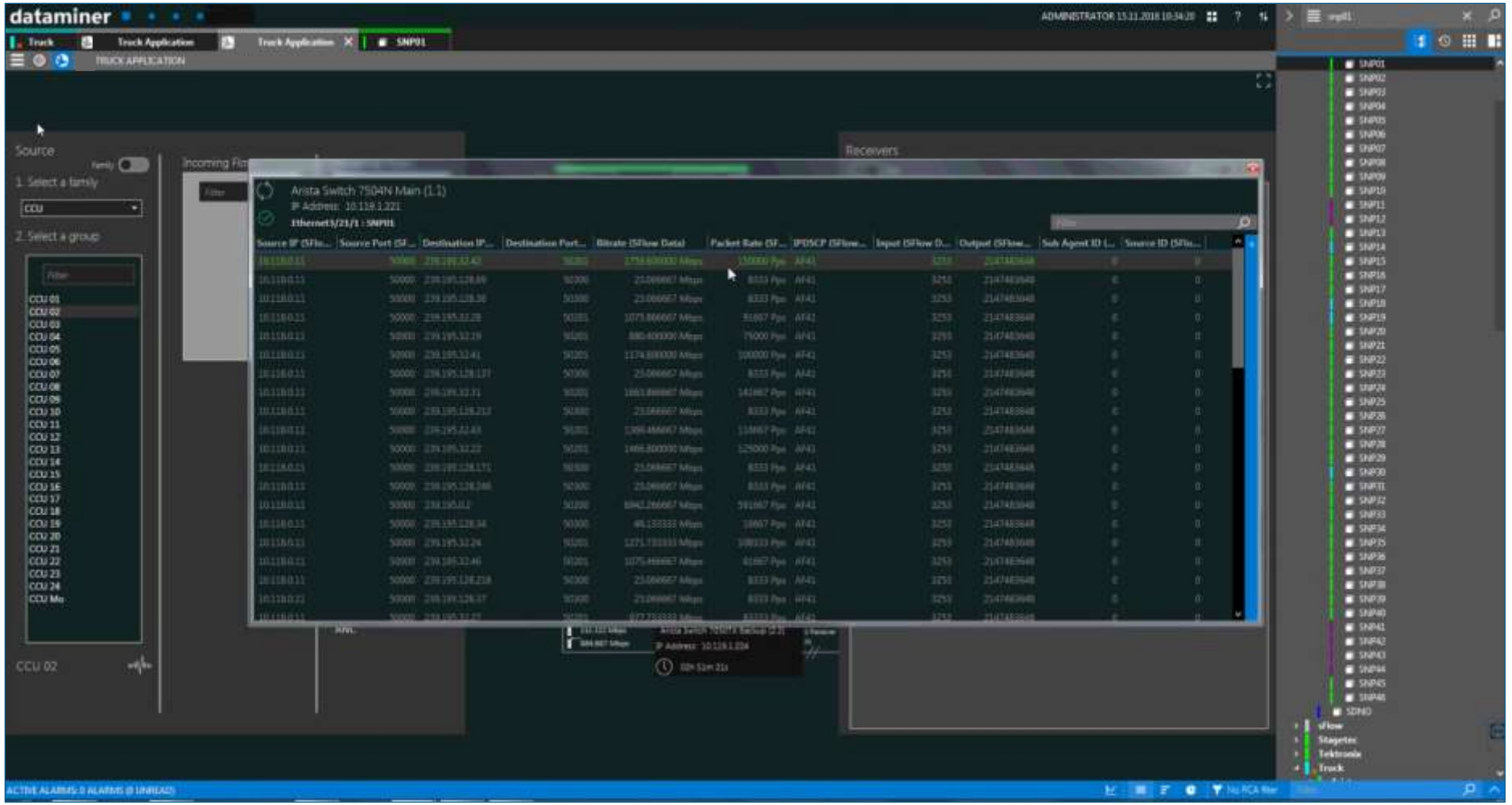
Drill Down To Details



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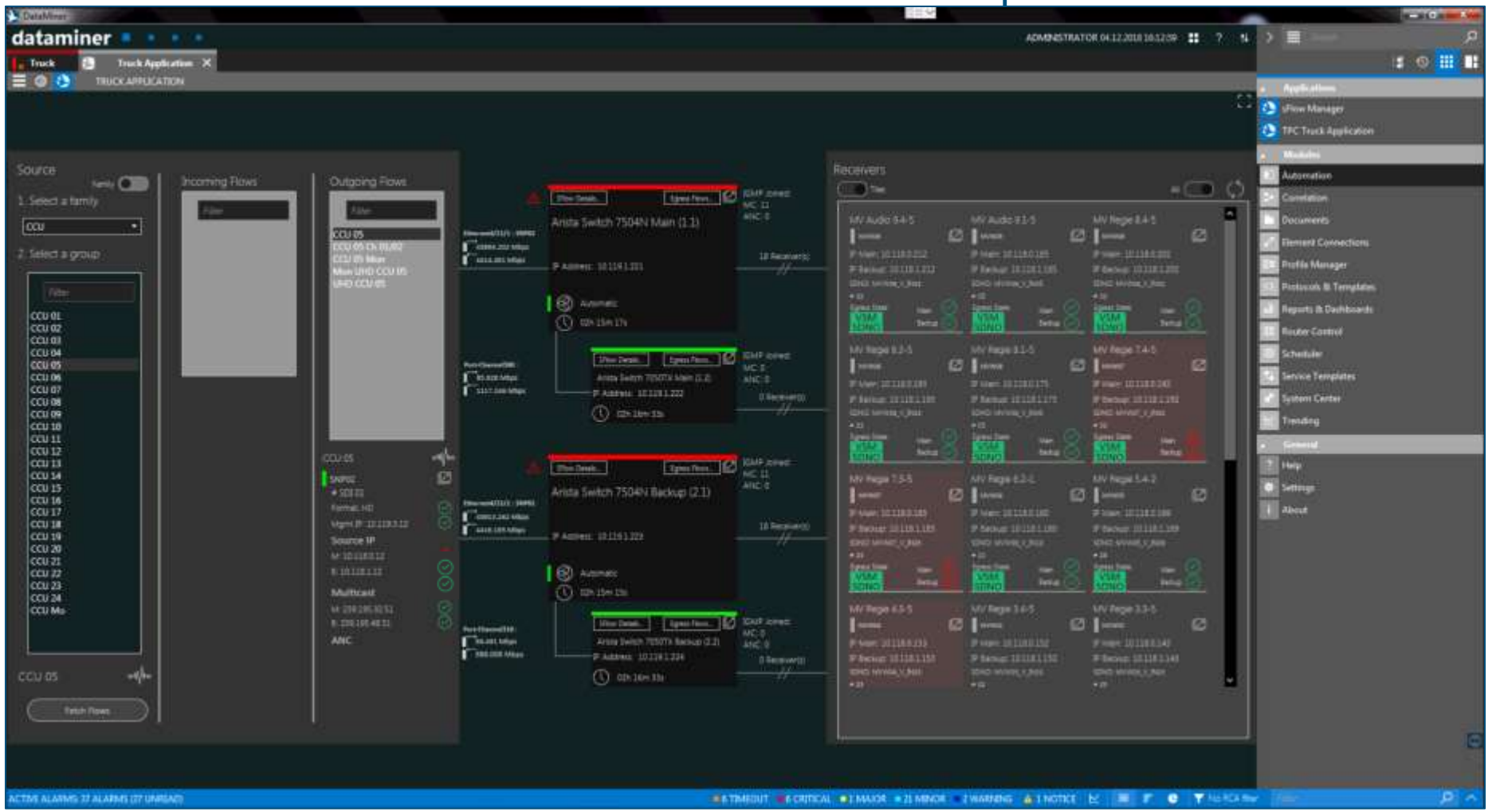
Stream Issue Example



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SUMMARY

MONITOR AND MANAGE
YOUR PTP INFRASTRUCTURE
WITH CARE

GO FOR TRUE E2E
SDN ORCHESTRATION
RATHER THAN
SDN CONTROL

monitor
control
orchestrate

TRACK YOUR
UNCOMPRESSED MEDIA
FLOWS IN REAL-TIME

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Thank You!

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SEE IT IN ACTION?

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