

AVAYA ENGAGE®

Experiences That Matter

Presented by: AVAYA | IAUG.

602 SIP Trunk Monitoring & Troubleshooting Best Practices

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#AvayaEngage

What to Monitor?

If you are responsible for the service,
Monitor it!

What to Monitor?

Devices

- Internet firewall
- Internet router
- First-hop ISP router

Elements

- Availability/Reachability
- CPU Utilization
- Packet loss on interfaces



What to Monitor?

Devices

- SBC



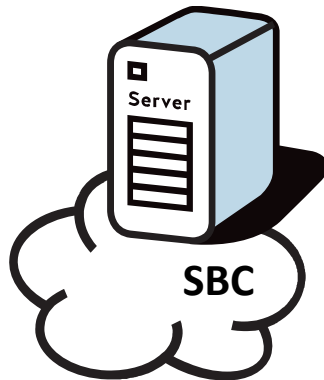
Elements

- Availability/Reachability
- CPU Utilization
- Packet loss on interfaces
- Sessions
- Interface usage
 - POTS
 - T1
 - Cellular
 - SIP

What to Monitor?

Devices

- SIP Trunk SBC



Elements

- Availability/Reachability
- Latency
- Loss
- Jitter
- Out-of-order packets
- Route-path

The Troubleshooting Problem

Carriers & providers
won't help prove
that it's their problem

Troubleshooting Approach

- Prove that the problem is NOT in your network
- Prove that the problem IS in their network

This makes sure you aren't chasing two problems at the same time

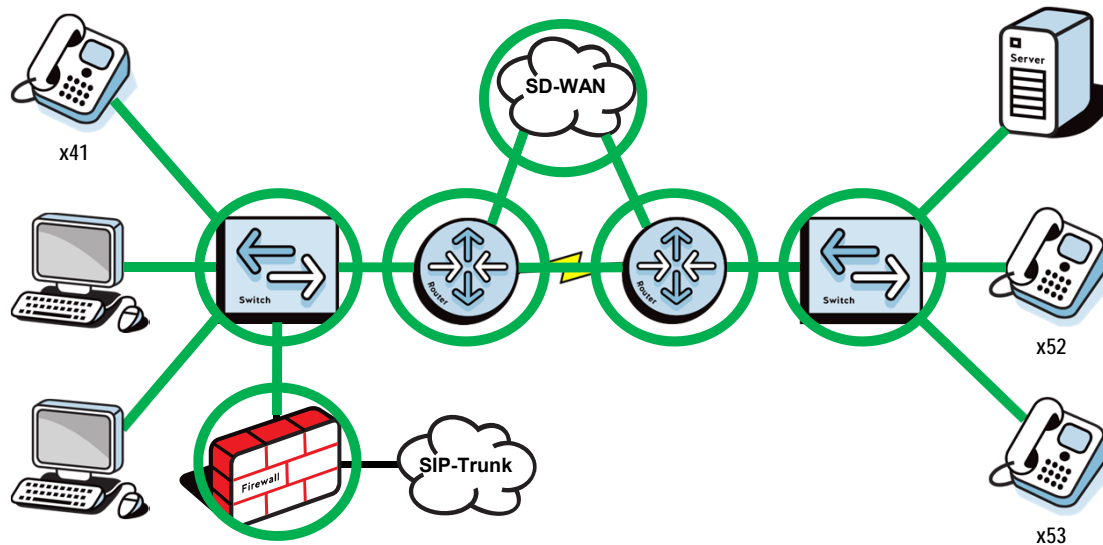
Problem Location Possibilities

- Problem could exist inside your network
- Problem could exist on the Internet
 - Your network
 - Backbone
 - Remote network
- Problem could exist on the provider's network
- Problem could exist on the user's system or cell phone
- Bluetooth headset on local or remote side

Use a Rule-Out and Rule-In
Methodology

VoIP

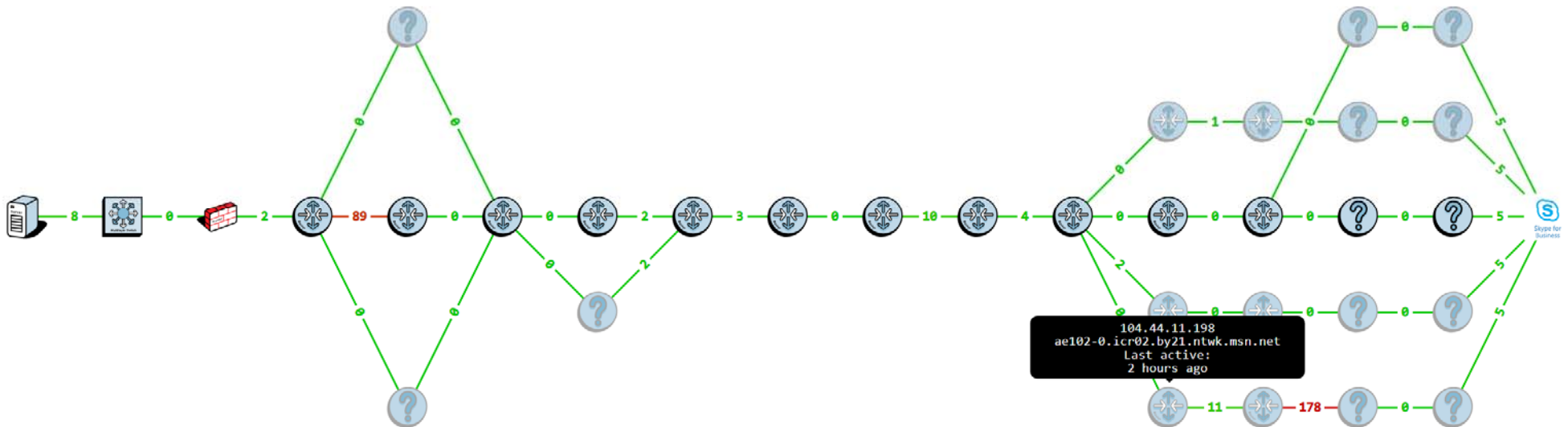
Rule-Out Methodology



Evaluate every involved device and link in your domain to make sure they are not dropping, buffering, or mis-routing packets

Rule-In Methodology

Evaluate current and historic route path taken to connect to the SIP-Trunk provider



Determine when and where route changes occurred that caused problems

Tool Options

- Packet capture tools
- Network monitoring software
- Route-path analysis software
- Call simulators

Packet Capture Tools

What it can do

- Confirm packet loss
- Confirm out of order packets
- Confirm high jitter

What it cannot do

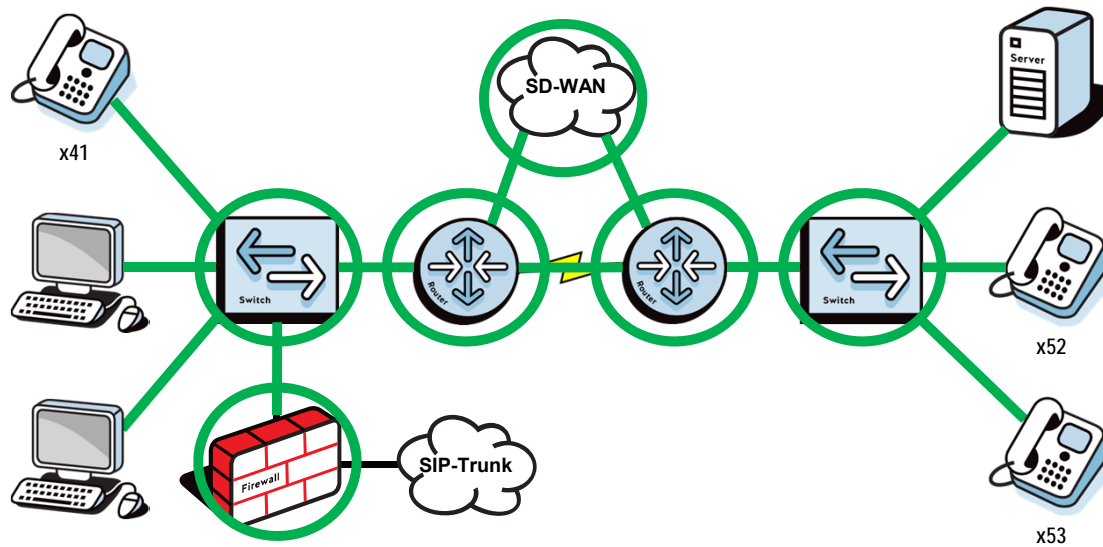
- Find the source of packet loss
- Find high latency

Packet Capture Tools

Examples

- Wireshark
- Cloudshark
- TCPDump
- Microsoft Netmon
- Netscout
- Extrahop

Network Monitoring Software



Evaluate every involved device and link to make sure they are not dropping, buffering, or mis-routing packets

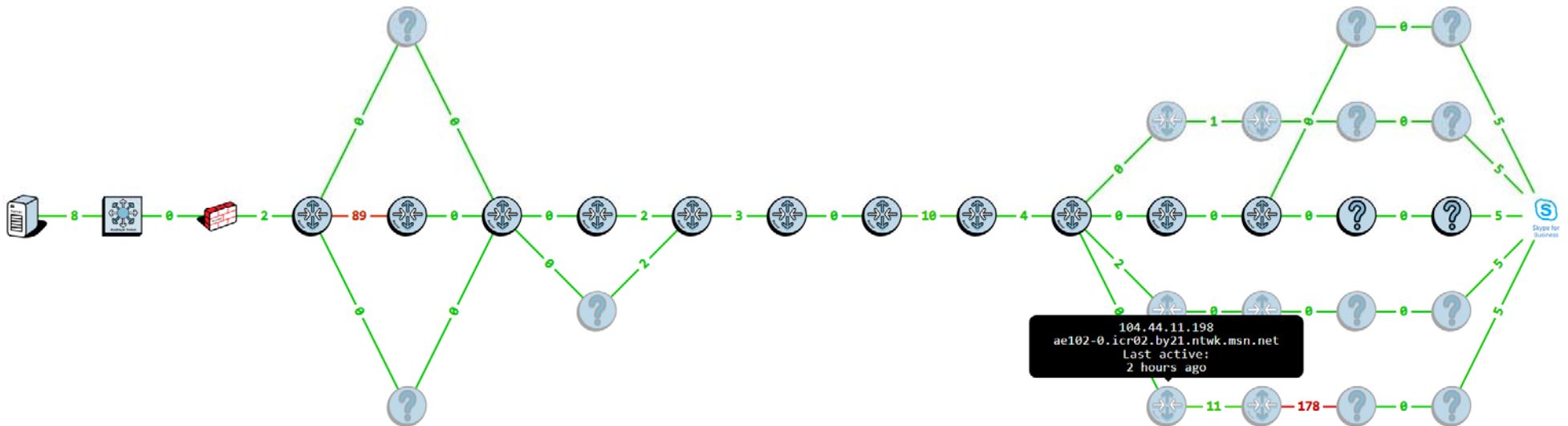
Network Monitoring Software

Examples

- PathSolutions TotalView
- IR Prognosis Path Insight
- SolarWinds Orion
- Paessler PRTG
- ScienceLogic

Route-path analysis software

Continuously determines the path to the SIP-Trunk provider and highlights problem areas



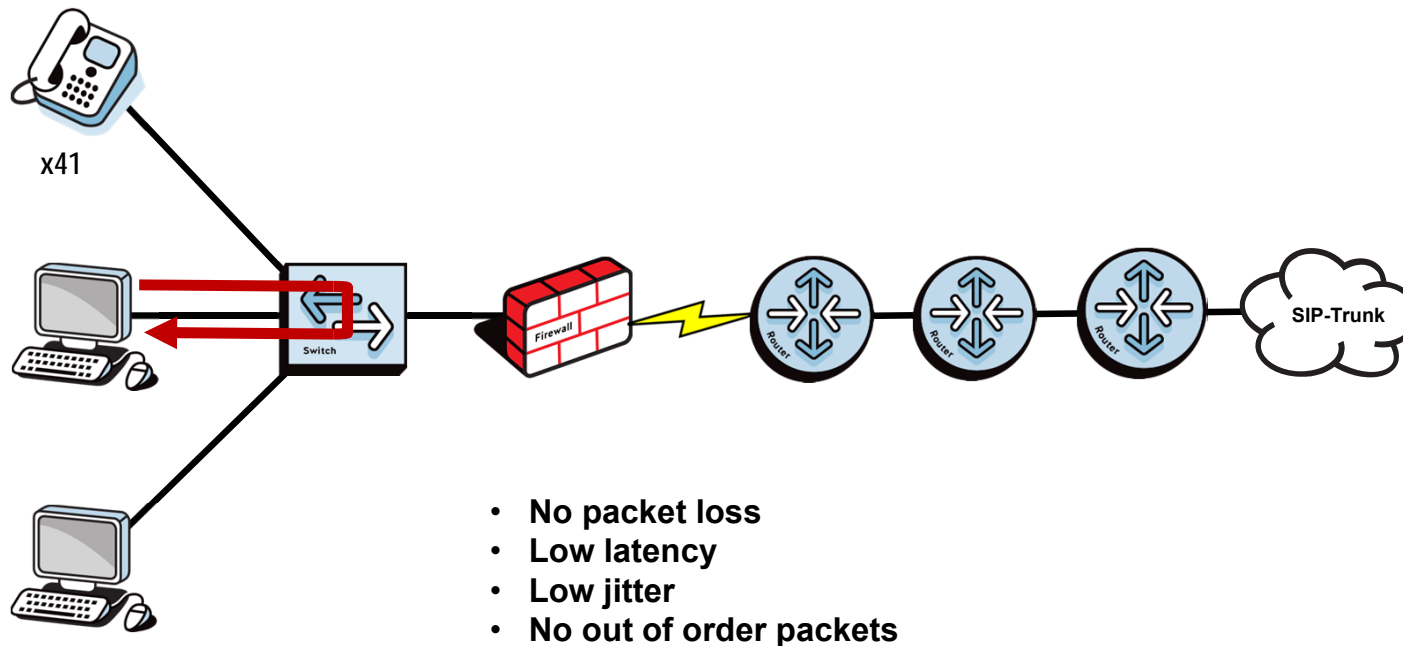
Determine when and where route changes occurred that caused problems

Route-path analysis software

Examples

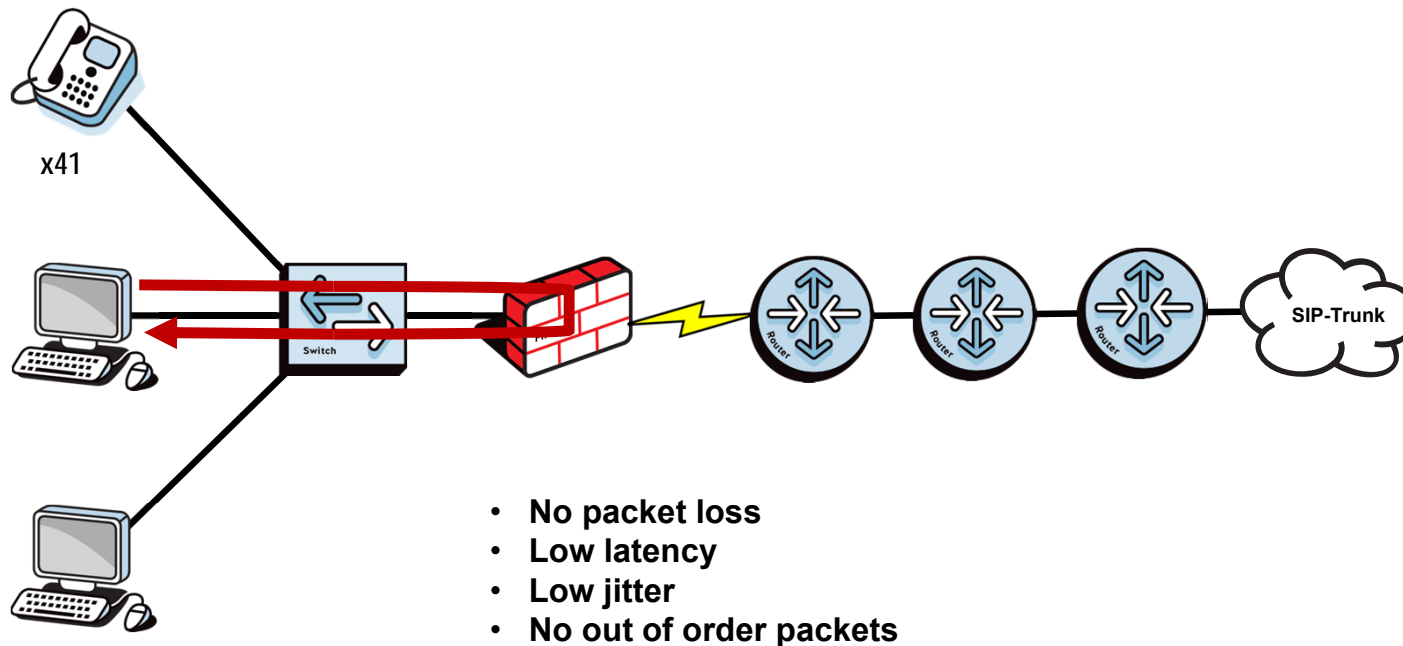
- PathSolutions TotalView
- IR Prognosis Path Insight
- ThousandEyes
- SolarWinds NetPath

Call Simulation Testing



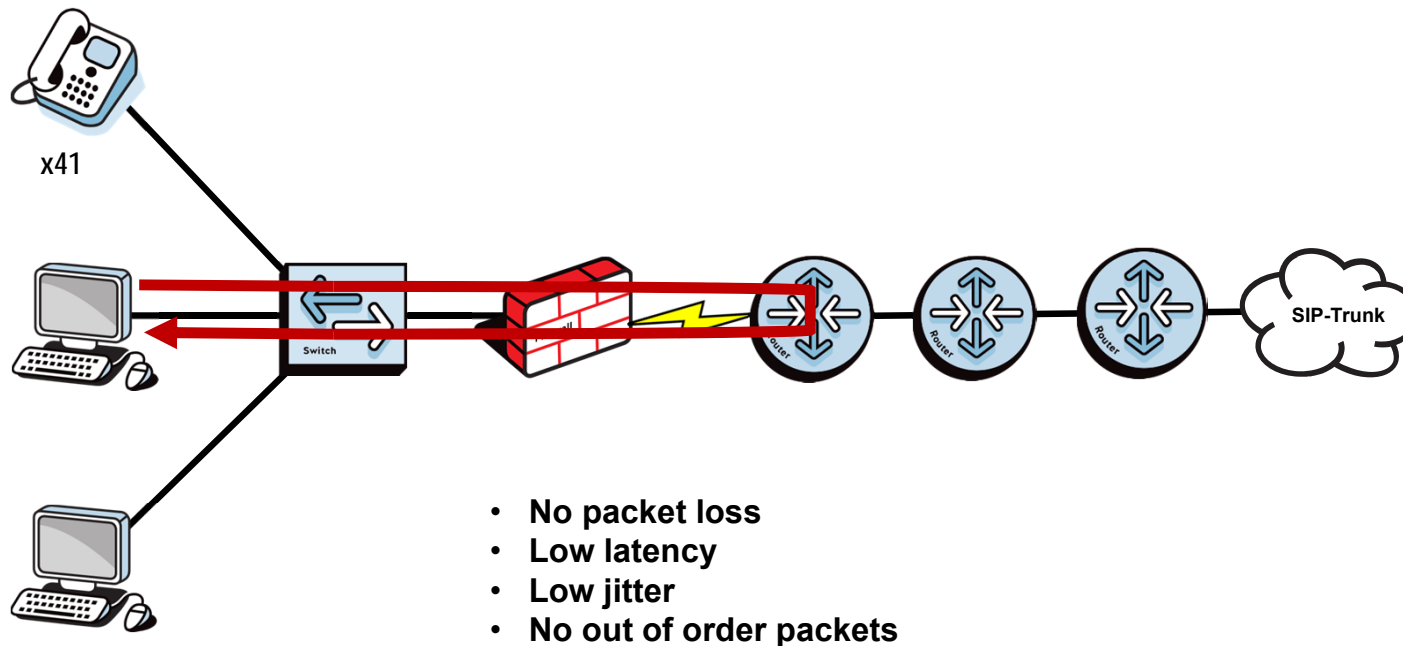
Test round-trip to each segment along the way to isolate

Call Simulation Testing



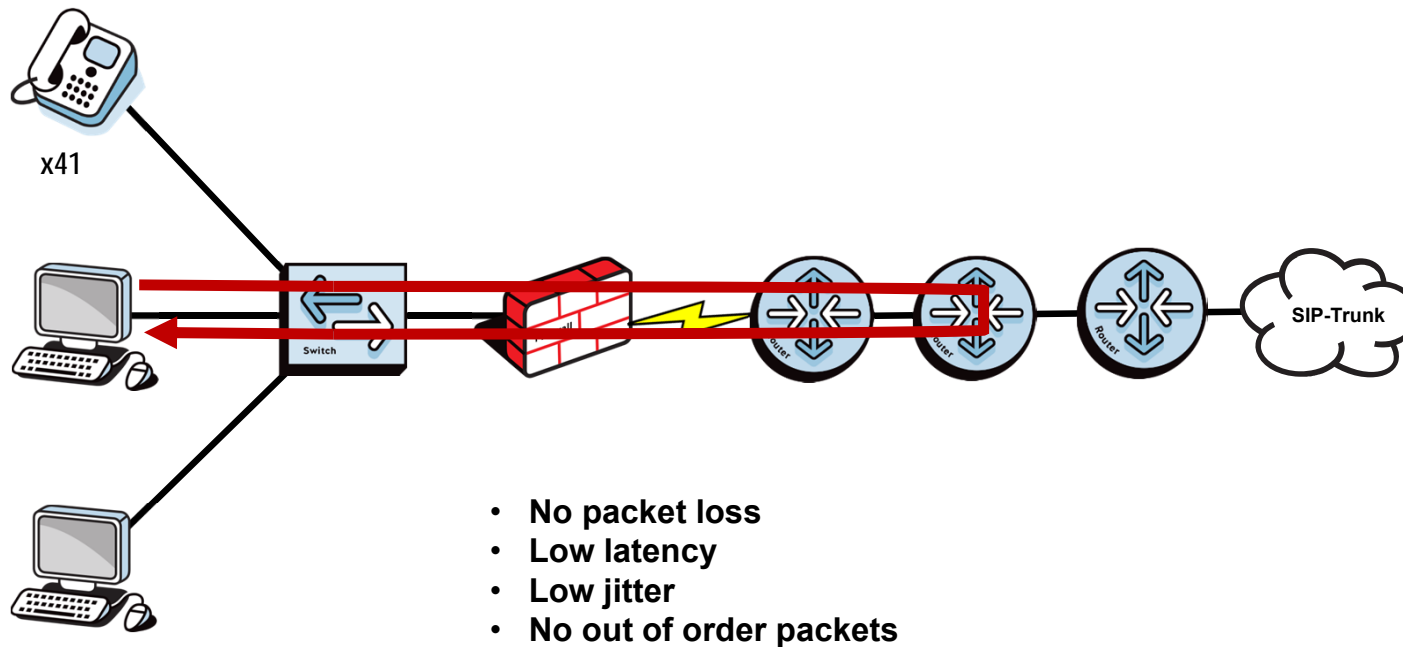
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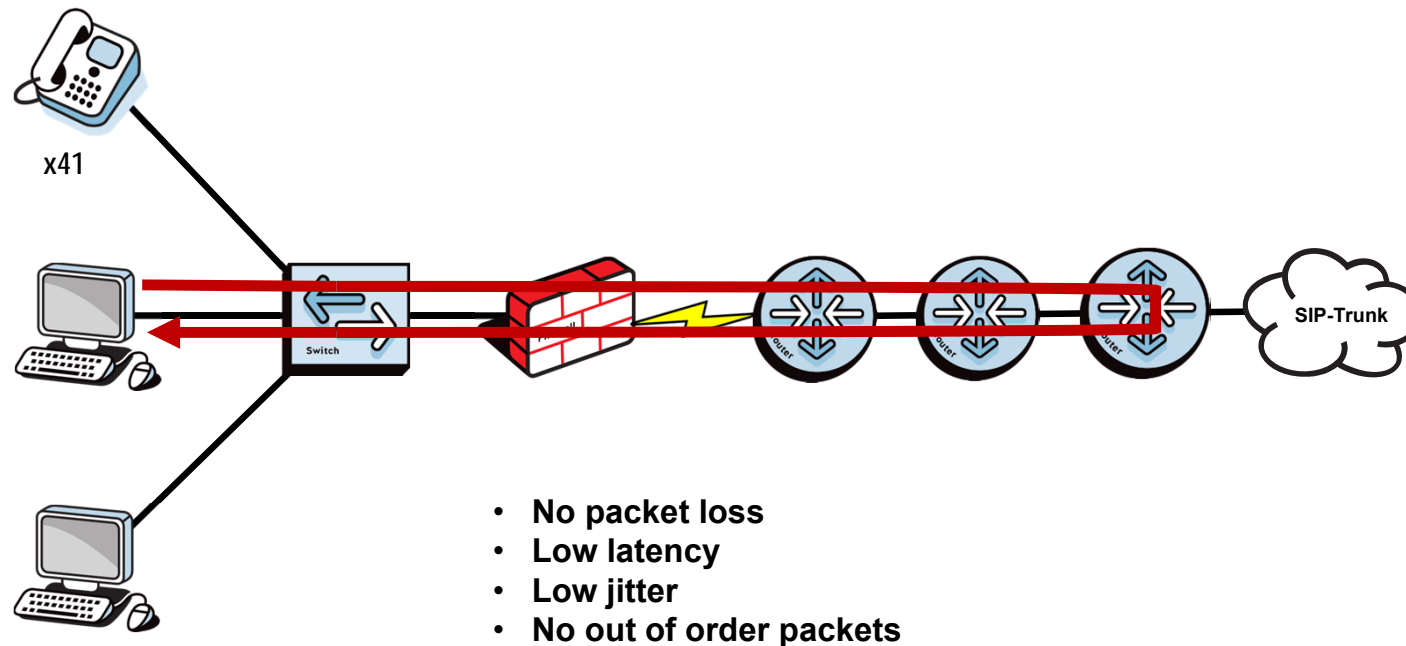
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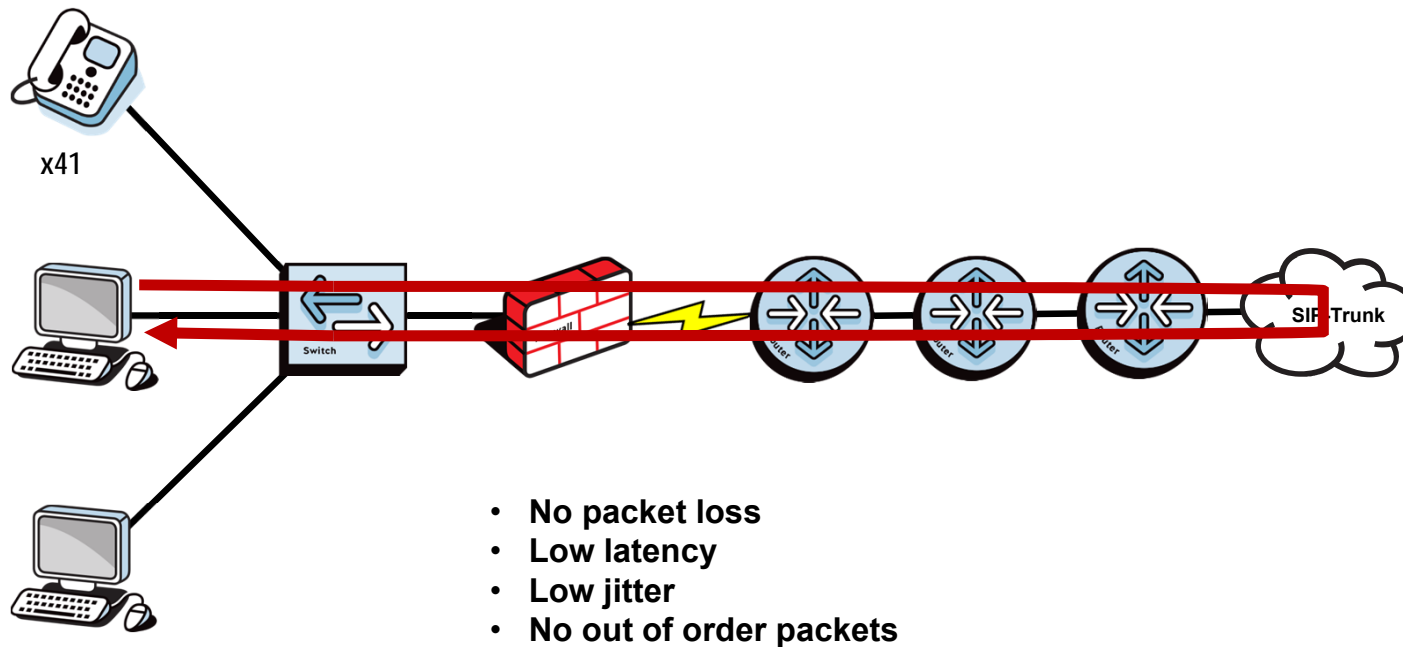
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Test round-trip to each segment along the way to isolate

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Test round-trip to each segment along the way to isolate

Call Simulation Software

Examples

- PathSolutions TotalView
- IR Prognosis Path Insight
- AppNeta
- Empirix Hammer

If you find a problem, what do you do?

- Find the responsible party and help them solve your problem
- Leverage relationships
- Recognize partner dependencies

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