Telchemy

Actively Managing Multimedia

Integrating VoIP Service Management into IP Phones and Gateways

Alan Clark

alan@telchemy.com

Integrated Service Management

- Alan Clark - Telchemy
  - Outline of problem space
  - Service quality management technology
- Alan Johnston - Worldcom
  - Service quality management - Service provider perspective
- Larry Truesdale - Nortel
  - Service quality management - Enterprise perspective
- Ed Morgan - Texas Instruments
  - Integrating service quality management into IP Phones and Gateways
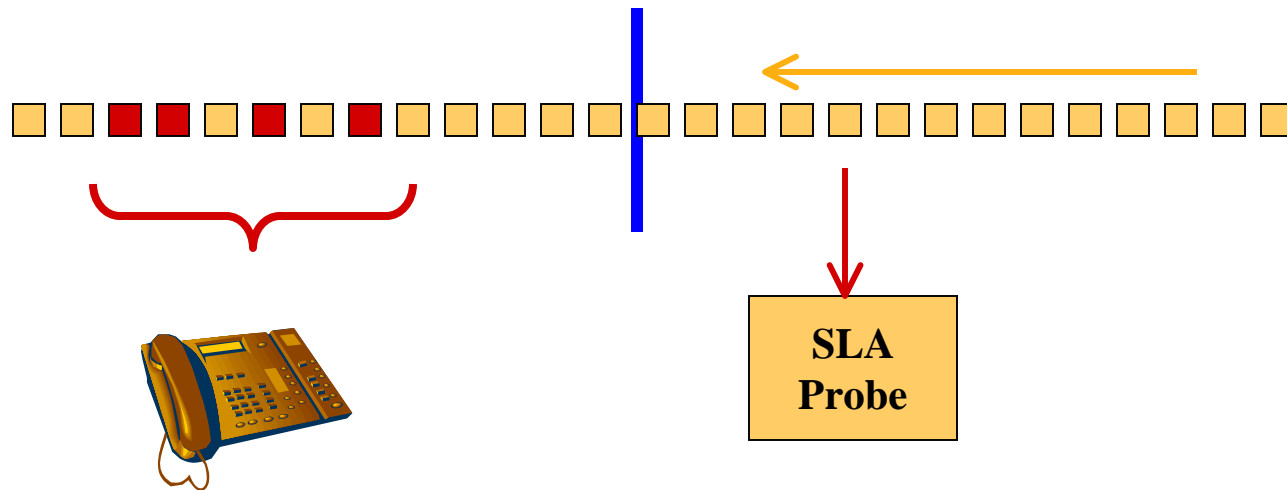- Questions?

The problem space
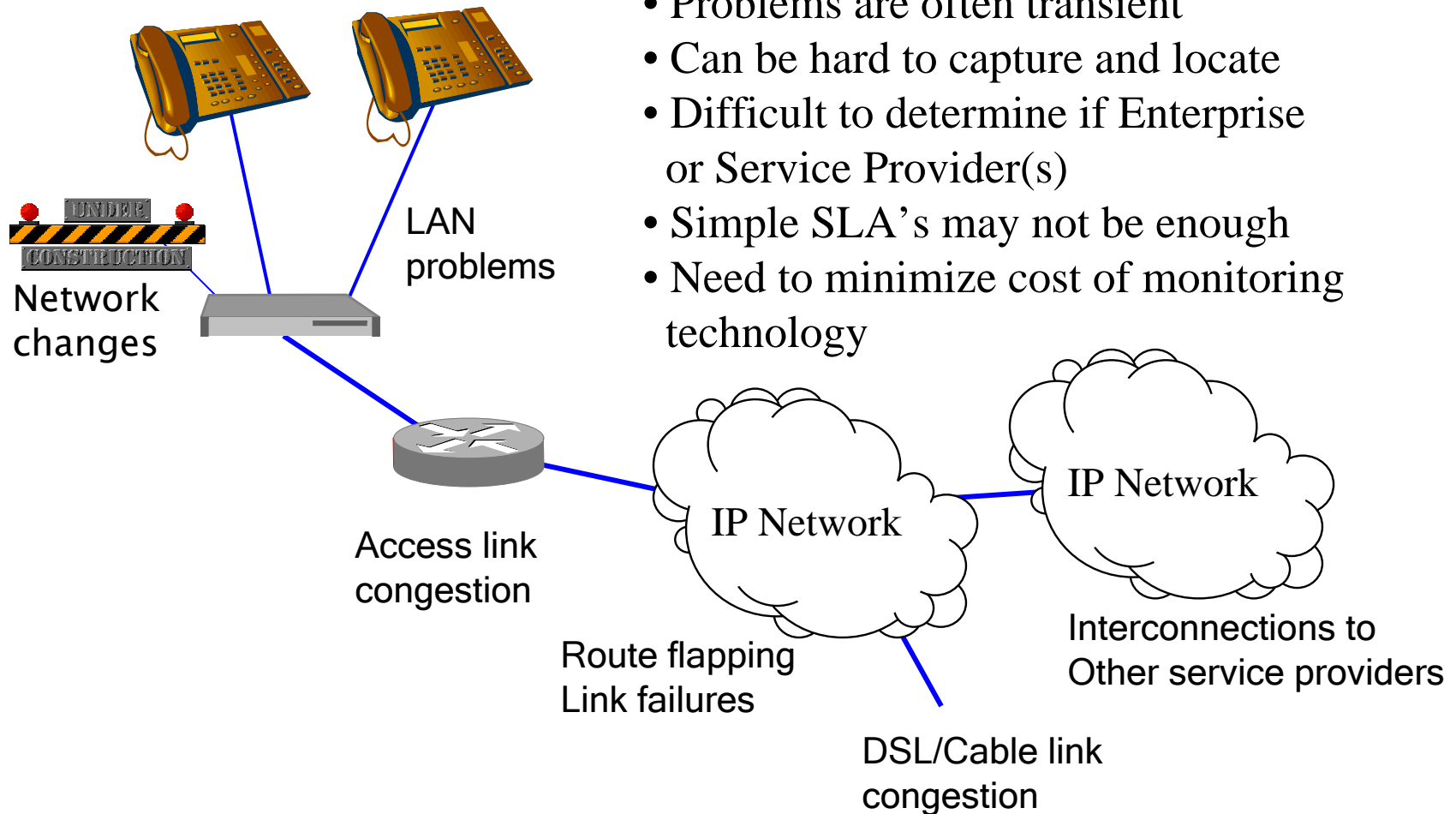
- Problems are often transient
- Can be hard to capture and locate
- Difficult to determine if Enterprise or Service Provider(s)
- Simple SLA's may not be enough
- Need to minimize cost of monitoring technology

LAN problems

Network changes

Access link congestion

IP Network

IP Network

Route flapping
Link failures

DSL/Cable link congestion

Interconnections to Other service providers
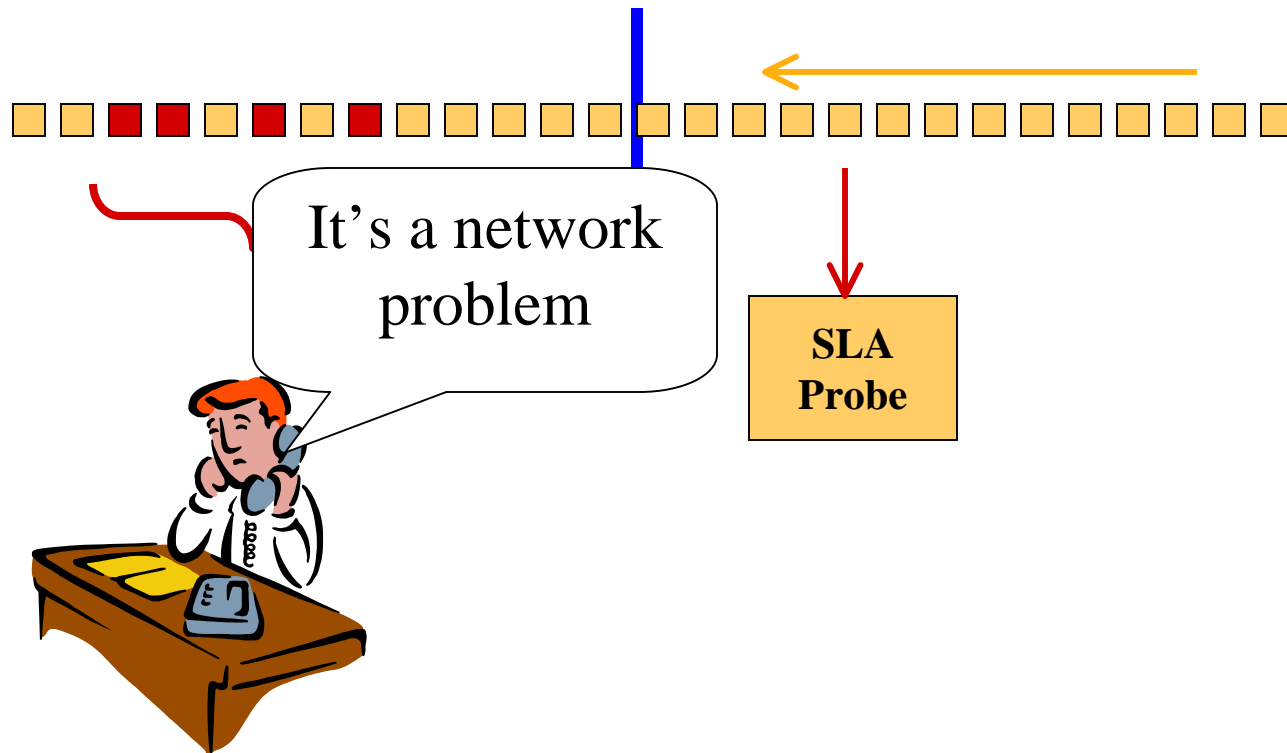
Why aren't simple SLAs enough?

User hears effects of burst
of packet loss/discard

SLA
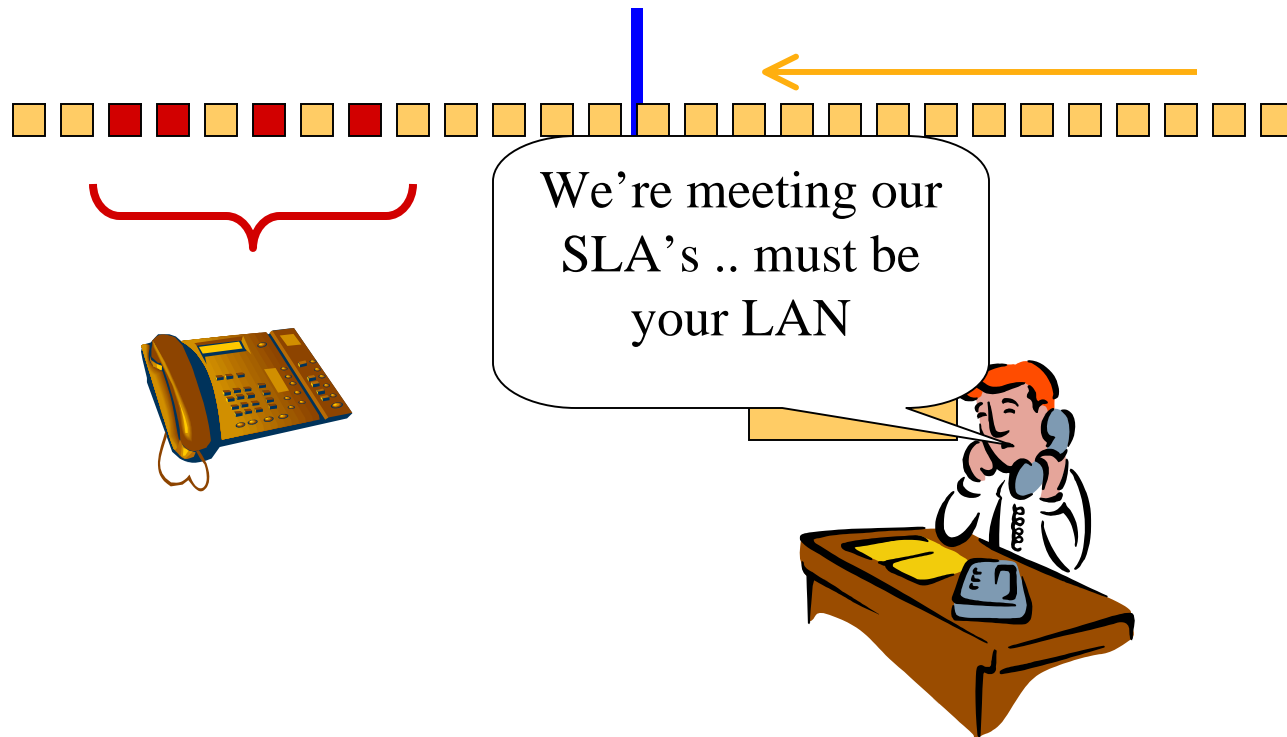Probe

Simple SLA report - average
lost packets per minute

Why aren't simple SLAs enough?

It's a network problem

SLA Probe

Why aren't simple SLAs enough?

We're meeting our SLA's .. must be your LAN

Solution – distributed monitoring

IP Phones
& Gateways

IP Network

IP Network

Stream based monitor/
probe/analyzer

Embedded "endpoint"
probe
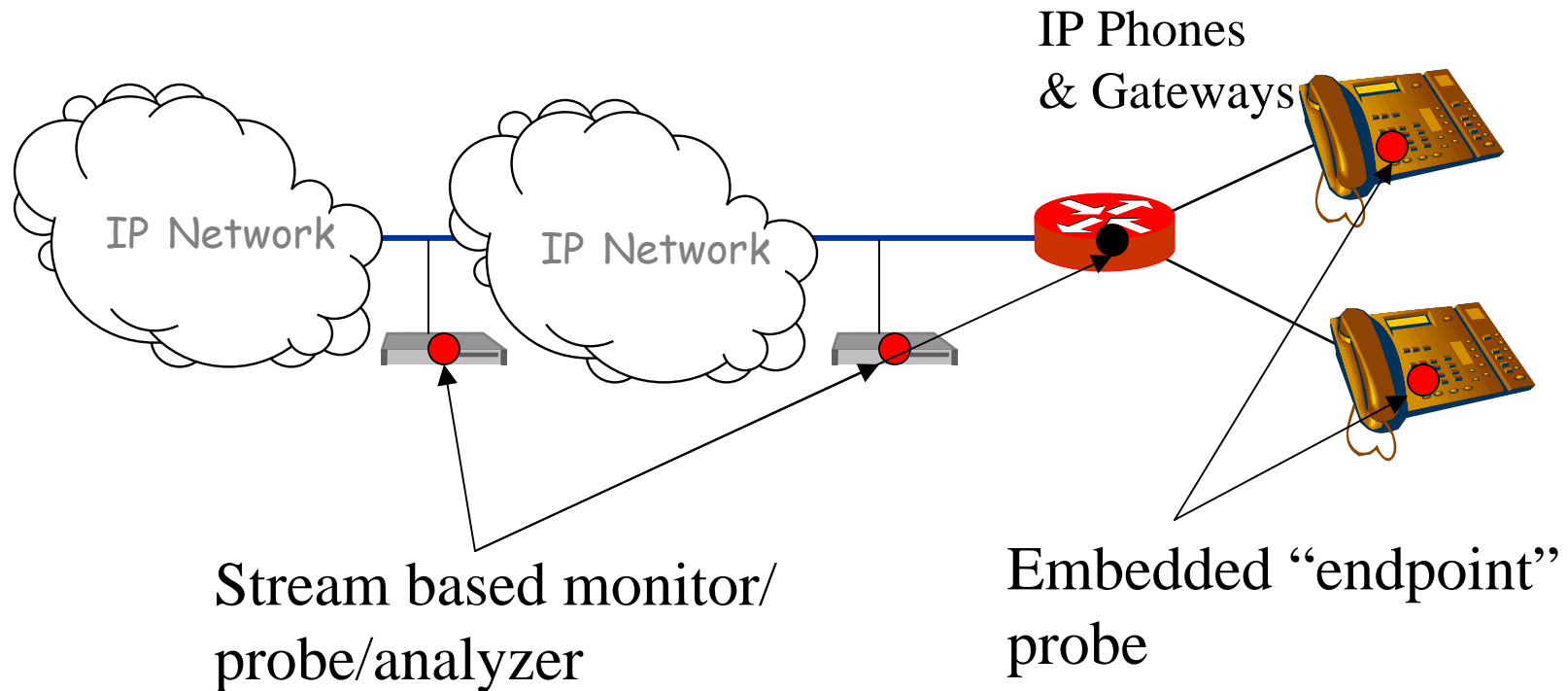
Common VoIP analysis algorithm

…common algorithm - VQmon

Arriving
packets

Jitter
buffer

Loss
events

Discard
events

CODEC

4-state Markov Model
Gather detailed
packet loss info
in real time

Metrics
calculation

MOS-LQ
MOS-CQ
MOS-PQ
Network R
User R
Burst statistics
Diagnostic data
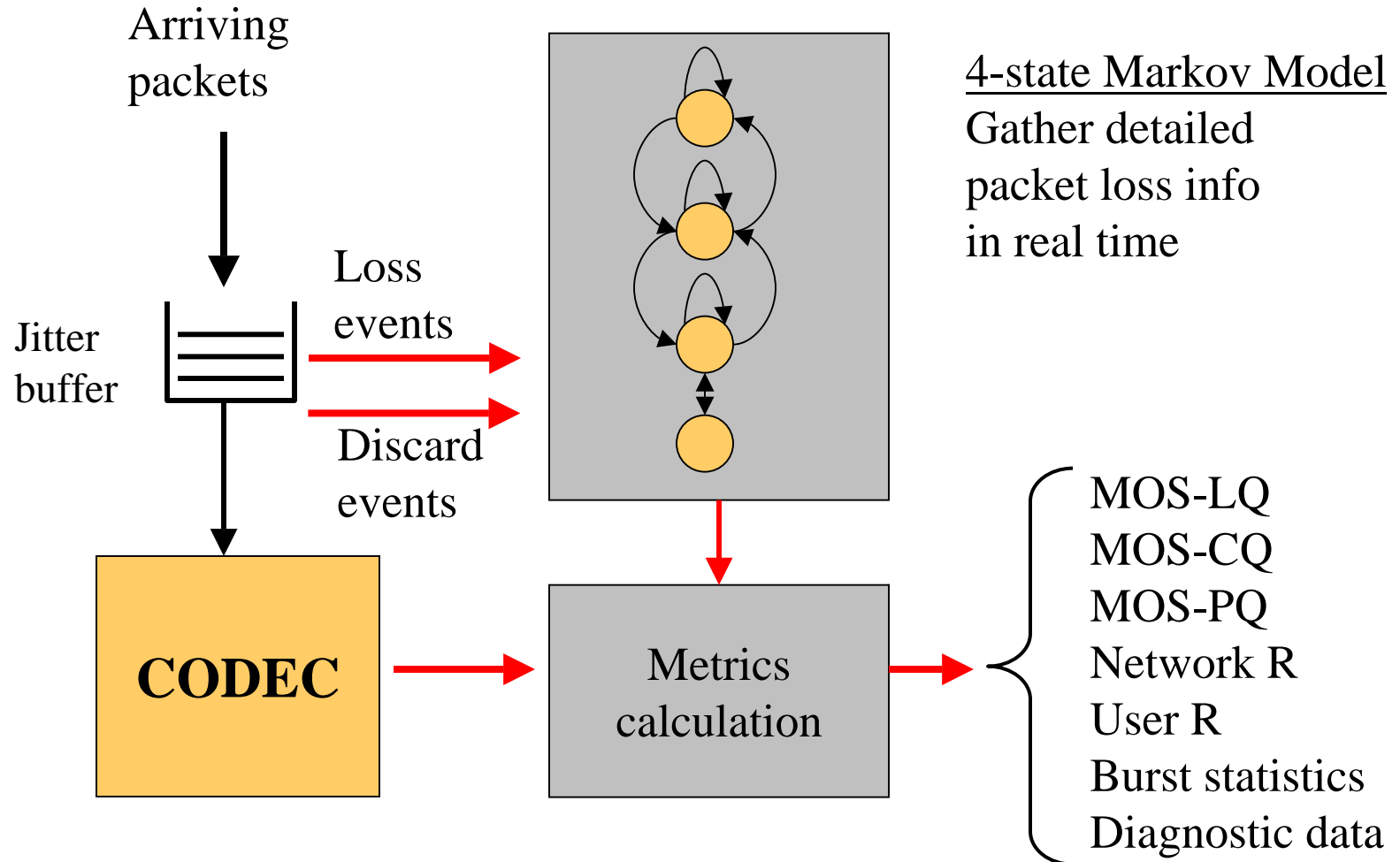
Stream vs Endpoint monitoring

SLA Monitor,
Protocol Analyzer,
Edge router

IP Phone,
IP Gateway

IP Network

CODEC

VQmon/SA -
detailed diagnostics

VQmon/EP -
fast, lightweight
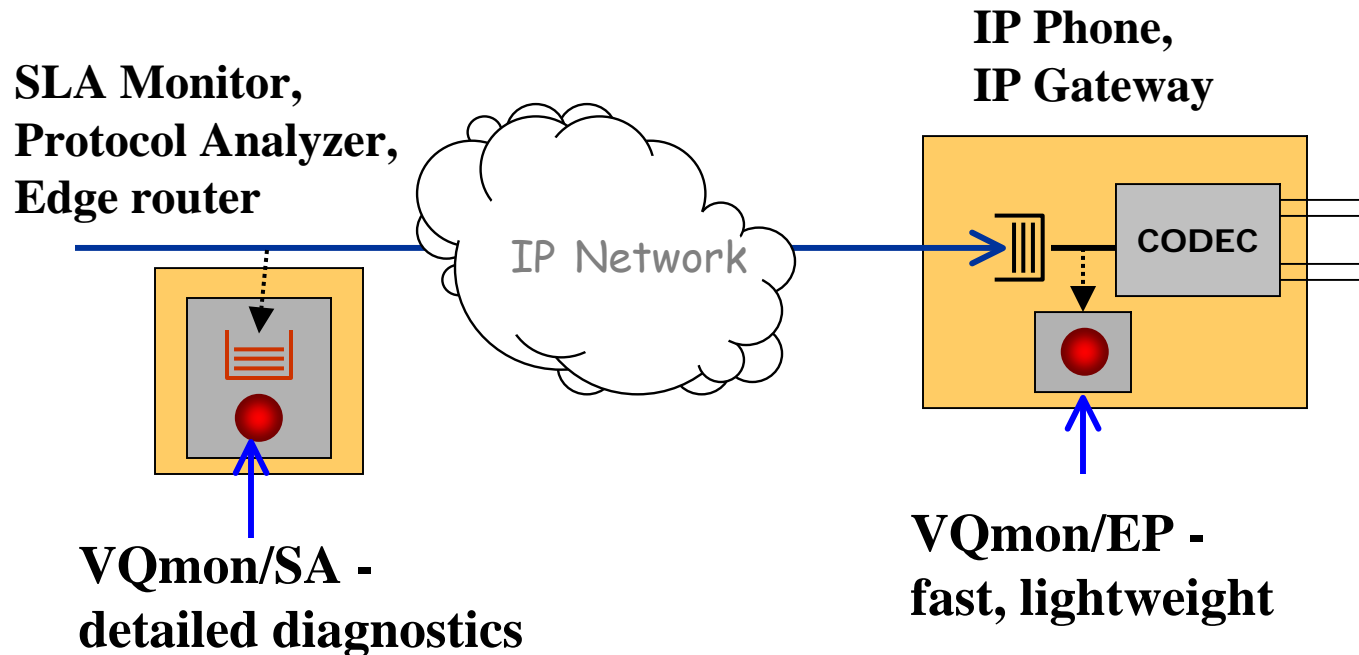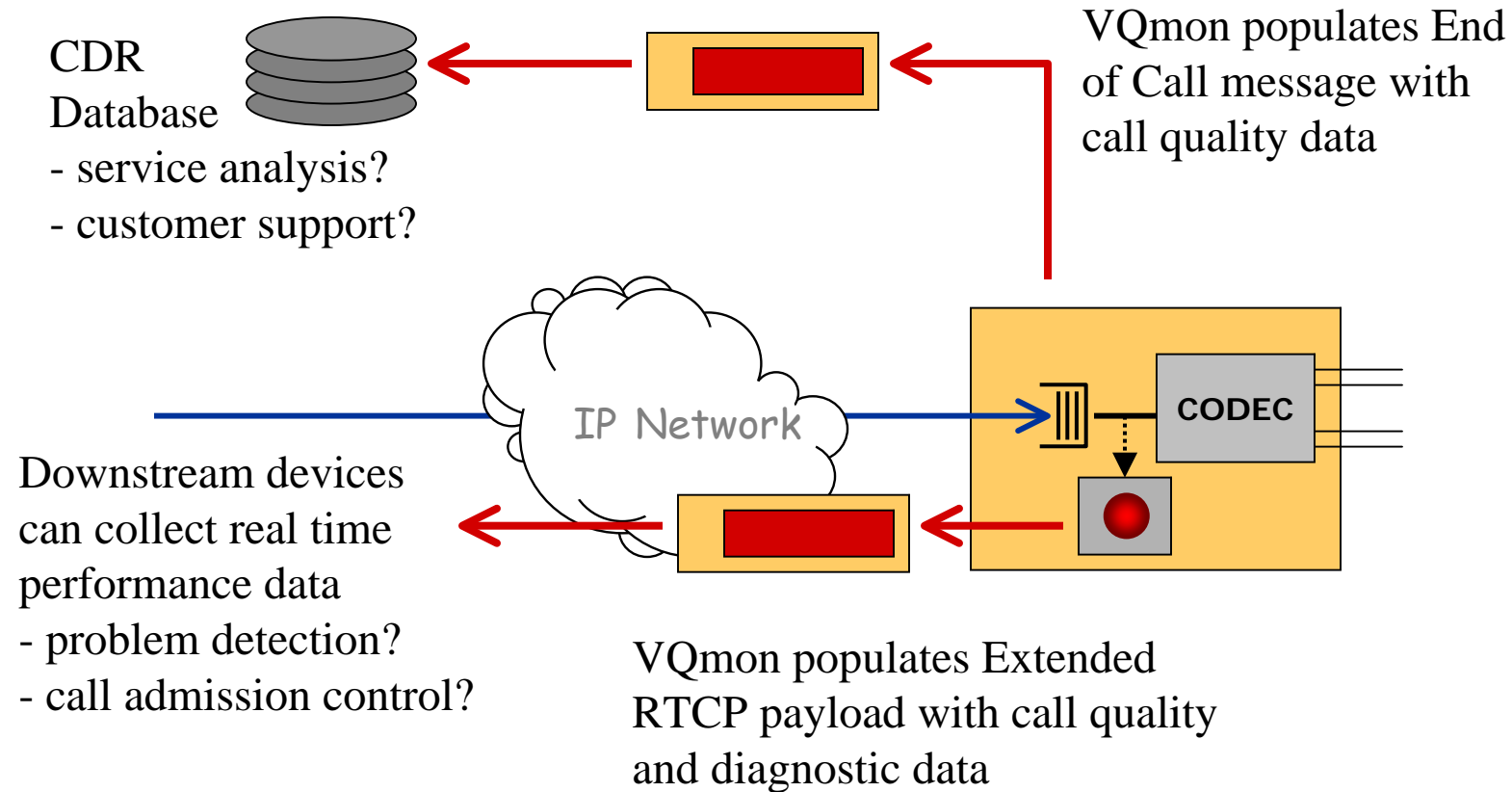
VQmon provides *real time monitoring* of large numbers of VoIP calls, measures *time varying* and *transient* impairments, produces perceptual quality scores and diagnostic data

Endpoint reporting?

CDR
Database
- service analysis?
- customer support?

VQmon populates End
of Call message with
call quality data

IP Network

CODEC

Downstream devices
can collect real time
performance data
- problem detection?
- call admission control?

VQmon populates Extended
RTCP payload with call quality
and diagnostic data

The "right" solution

- Common algorithm that can be used in endpoints, probes, firewalls……..

- Captures essential information about transient impairments and their effects on call quality

- Protocol support for real time and end of call reporting

- A growing community of service providers, equipment vendors and technology providers that use and support VQmon

A new partnership?

- Solving VoIP fault/ performance problems in isolation is hard for both Service Provider and Enterprise

- Networks will become more complex - VoIP traffic will cross multiple management domains

- Needs a new *cooperative service management* approach to problem resolution
  - Common tools, shared access to management information, cooperation on troubleshooting

- VQmon represents a step on this path