MTS from

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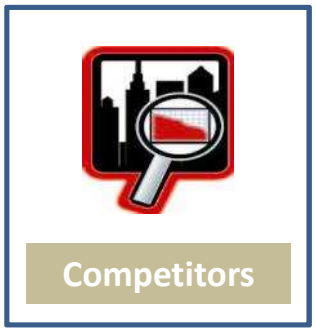
MTS : Multiprotocol Test Suite

Functional, load and probe testing



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MTS: Use case

Testing environment

IMS

IMS involvement

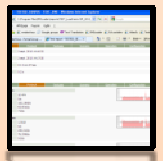
SIGTRAN

PSTN

Testing requirement

Functionnal testing

Load testing



Probes

QOS testing

Test automation

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MTS: Supported protocols

IP	**SIP** VoIP, IMS	**Diameter** IMS authentication	**H248** VoIP, IMS	**RTP** Media stream MOS calculation	**MSRP** Chat
	SNMP Management	**MTP User/ M3UA** SIGTRAN	**RTSP** Video control	**SMTP/POP/ IMAP** Mail	**SMPP/ UCP** SMS
	Radius Authentication	**HTTP** Web, SOAP	**STUN** Nat traversal		
	TCP Transport layer	**UDP** Transport layer	**SCTP** Transport layer		
PSTN	**Analog phone calls**		**ISDN**		

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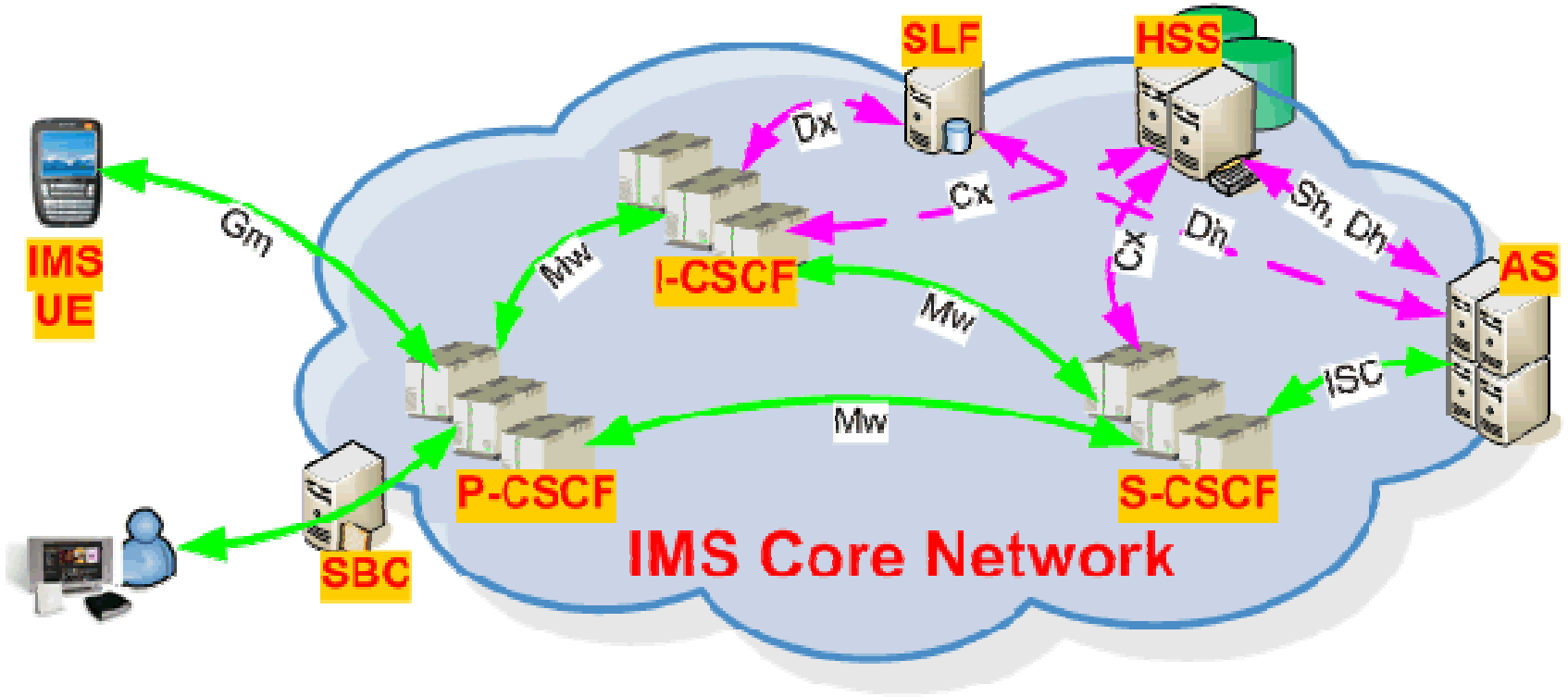
IMS

MTS can replace / simulate or interface with any of the IMS core bricks



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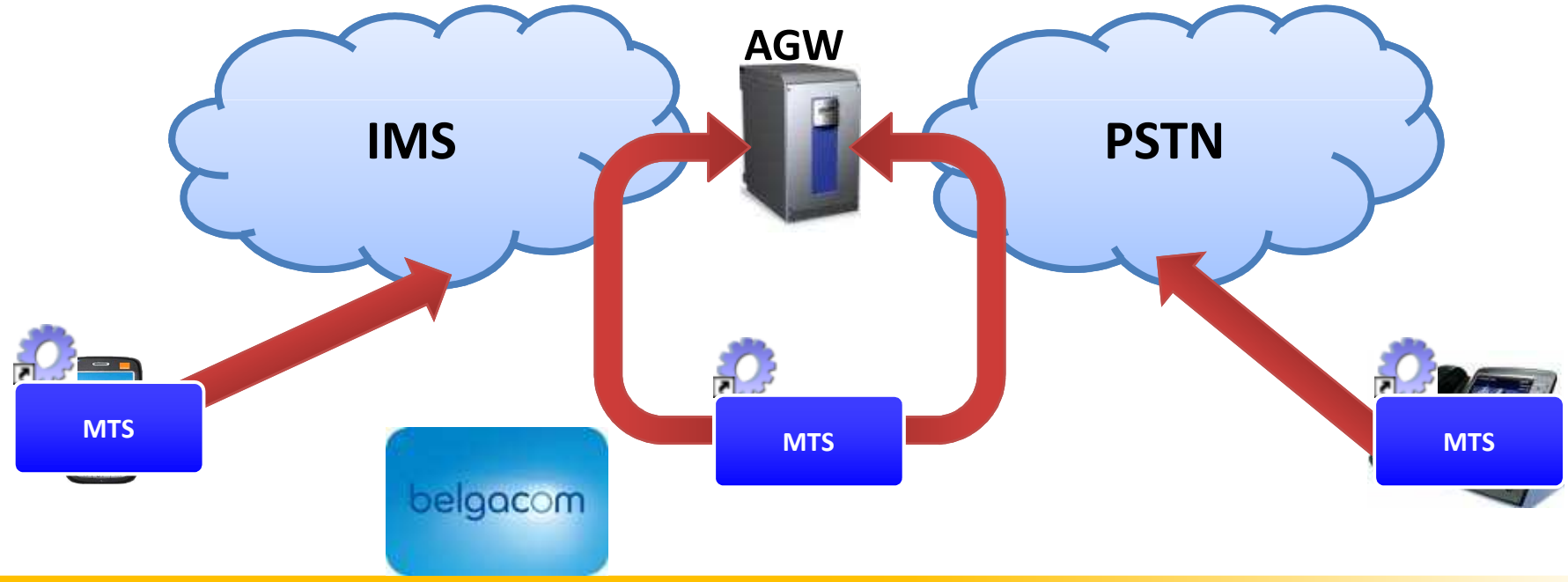
MTS allows end-to-end testing between IMS & PSTN access.

For smooth migration from PSTN core to IMS core and service continuity



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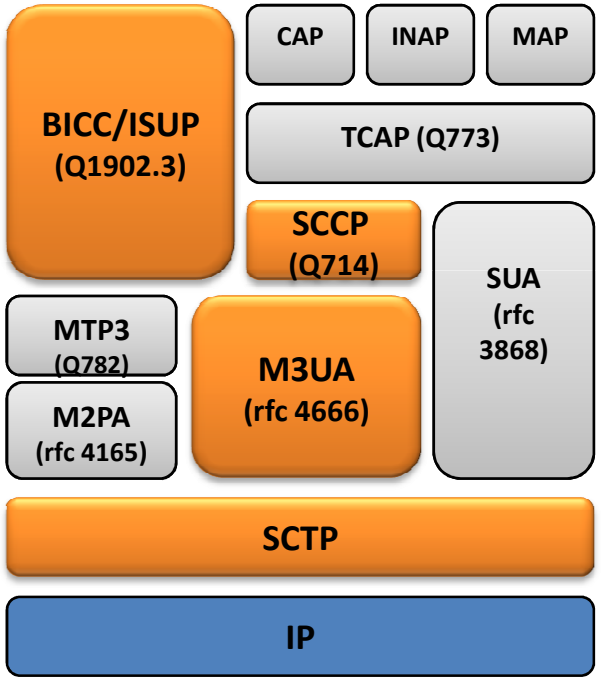
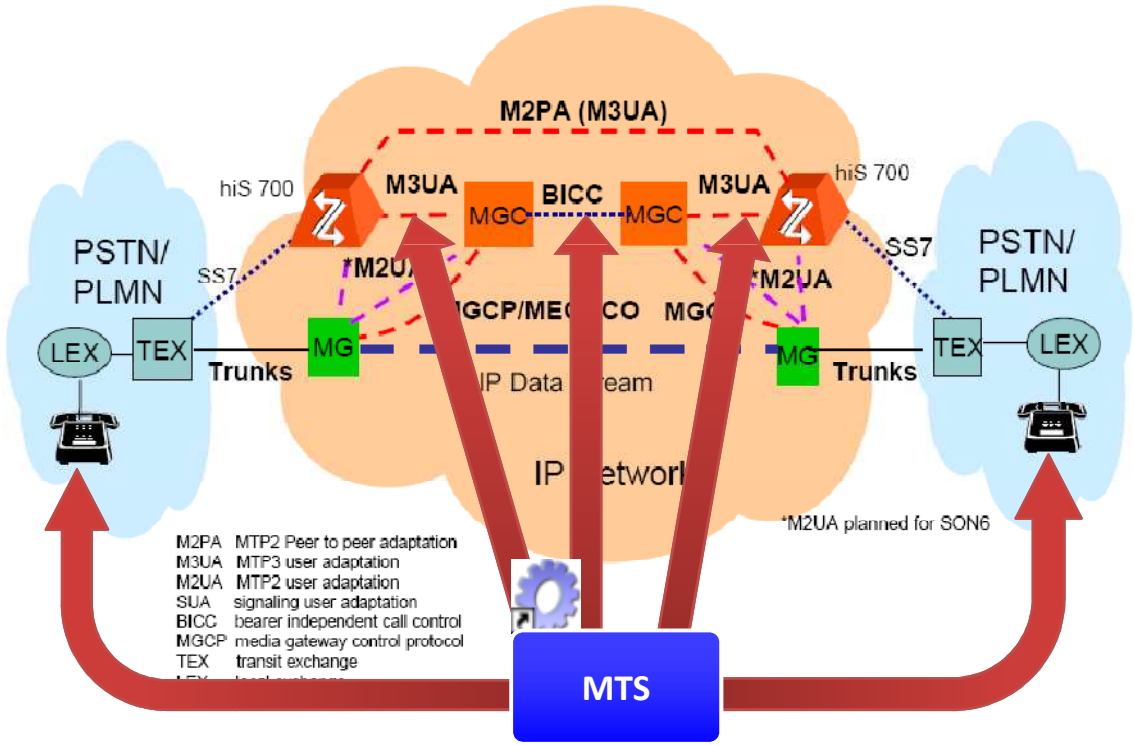


Orange parts supported

Next Generation Network Structure, as defined in IETF Workgroup SIGTRAN



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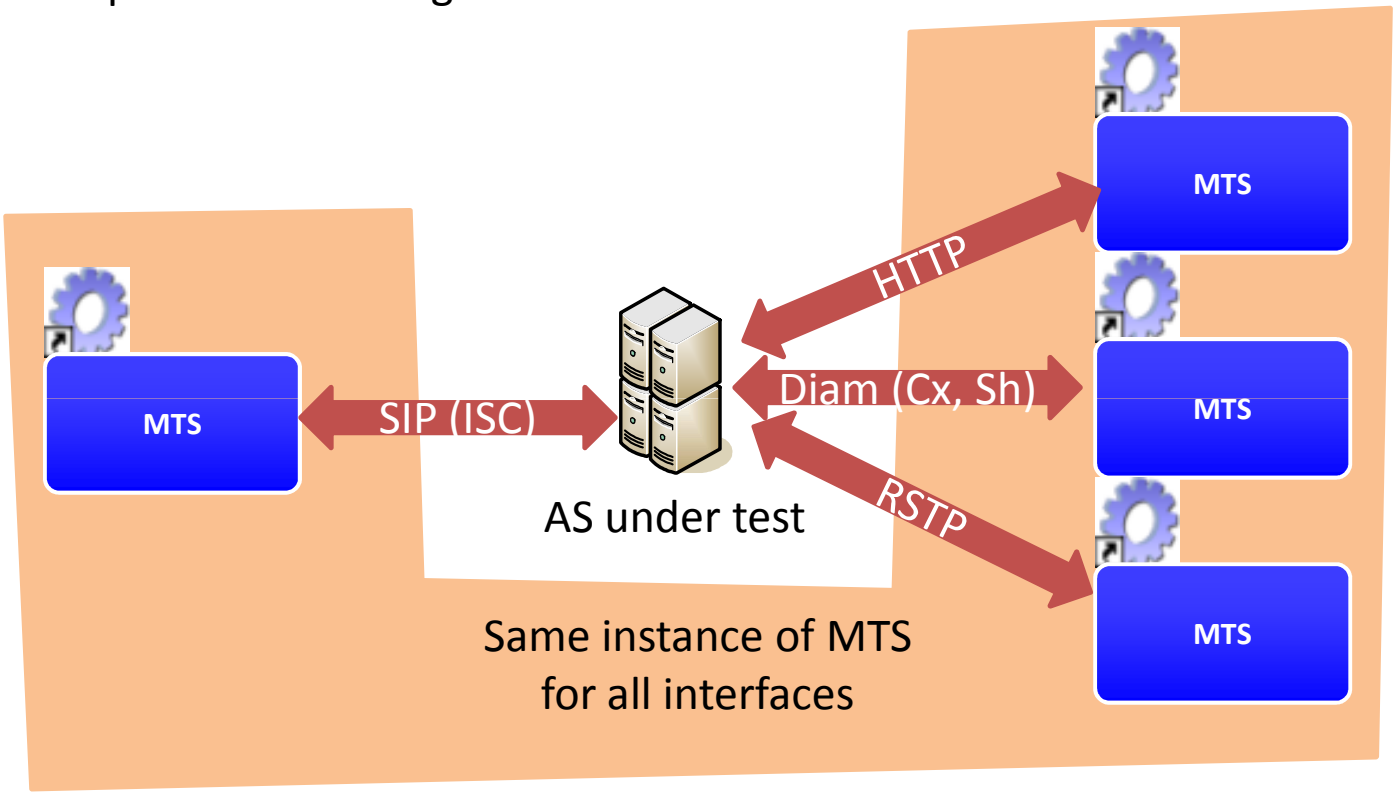
Use cases: Functionnal testing

- Example: SIP AS testing



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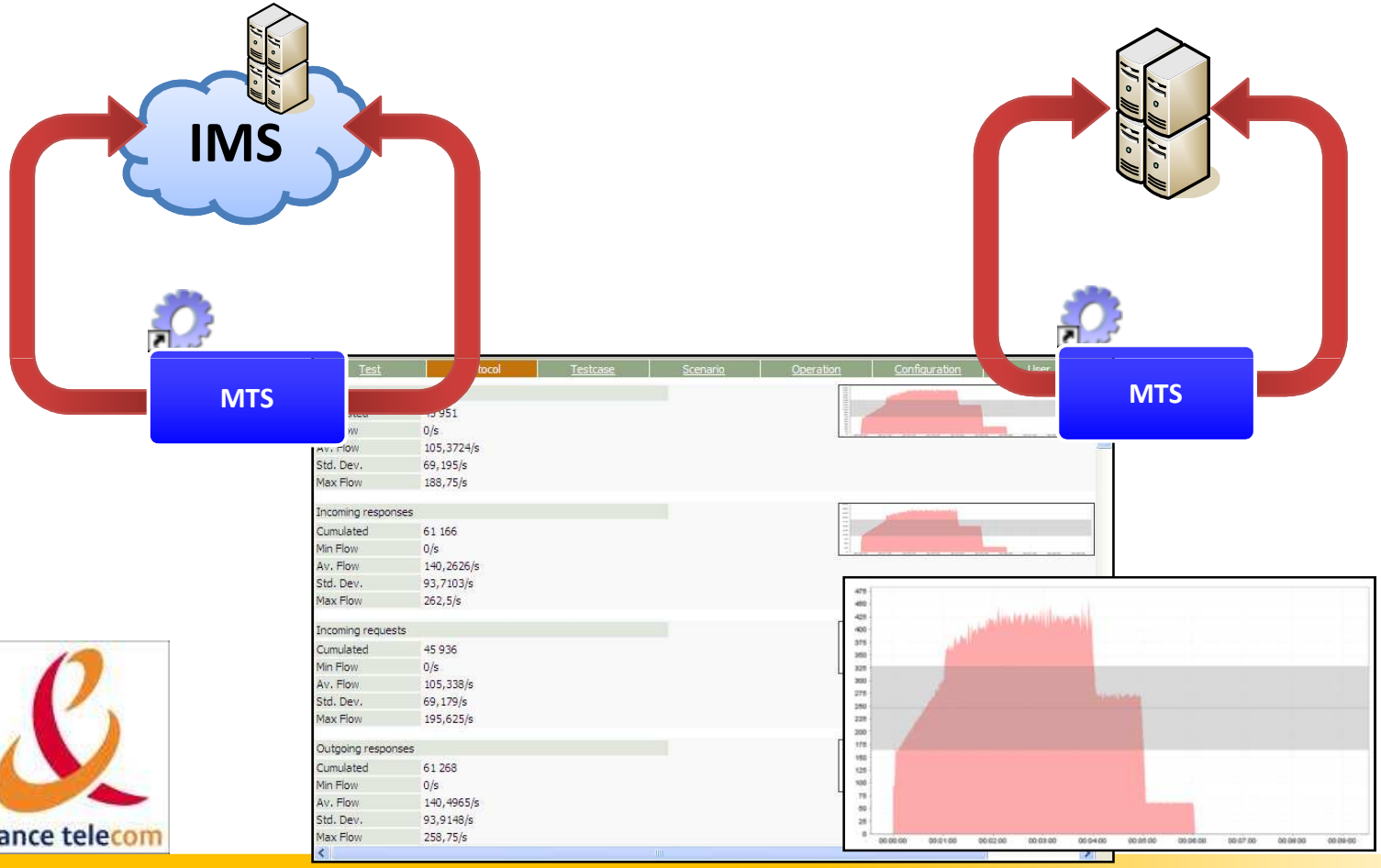
Use cases: Load testing

- End to End load testing
- Equipment testing



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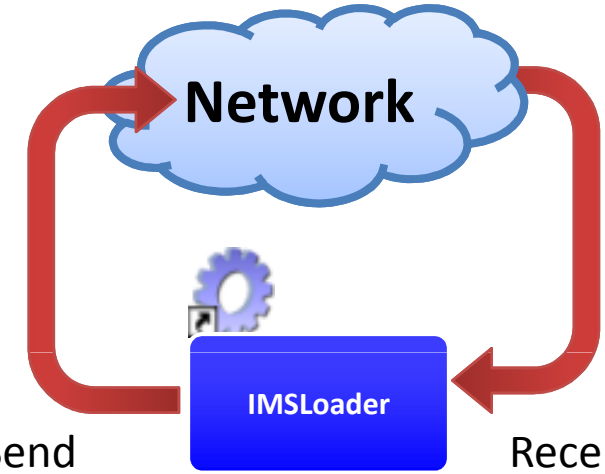
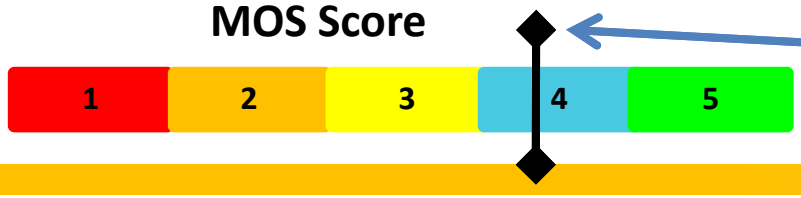
Use cases: QOS



MOS calculation based on E-Model (ITU-T Rec G.107)

Traffic parameters

- CODEC Parameters (Encoding Type, Frequency, Bandwidth)
- Set of empirically measured coefficients
- Coefficients compute the Effective Equipment Impairment (Ie-eff)
- Ie-eff is than combined with the measured jitter, the packet loss and the burstiness in a deterministic set of formulas which output the R factor
- Finally the R factor (values between 0 and 100) is scaled linearly to the MOS conversational quality estimation (MOScqe) which has values between 1 and 5.



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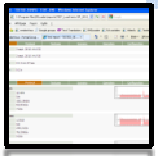
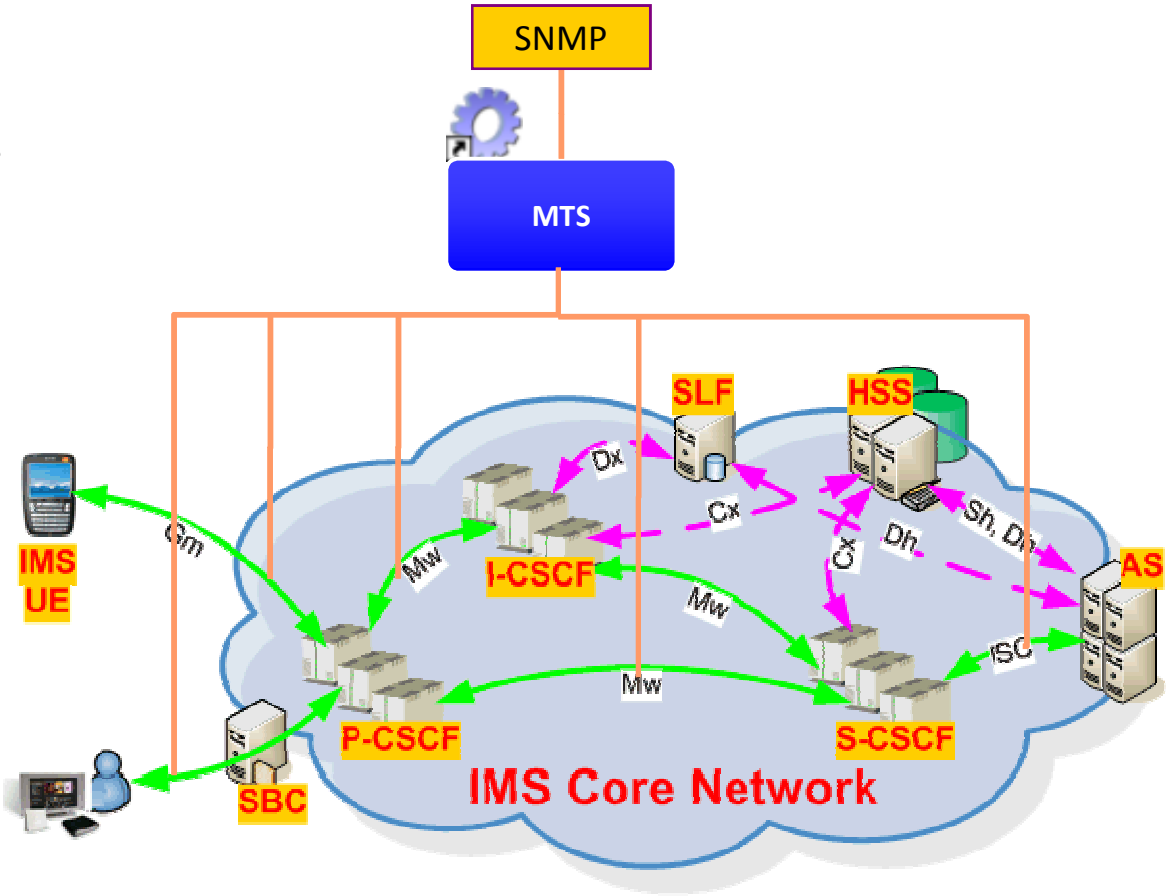


- Passive probes used to monitor the network
- Send SNMP traps



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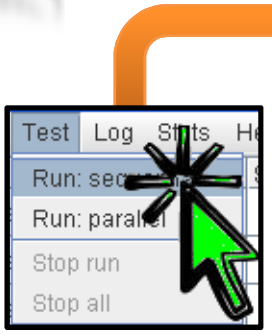
Use cases: Test automation



One click..

Testcase	Status
aaa/101_cx_uar	Ok
aaa/103_cx_sar	Ok
aaa/105_cx_lir	Ok
aaa/107_cx_mar	Ok
aaa/109_cx_rtr	Ok
aaa/111_cx_ppr	Ok
aaa/161_cx_mar	Ok
aaa/171_cx_rar	Ok
aaa/201_sh_udr	Ok
aaa/203_sh_pur	Ok
aaa/205_sh_snr	Ok
aaa/207_sh_pnr	Ok
aaa/301_rx_acr	Ok
aaa/302_rx_ccr	Ok
aaa/411_e4_udr	Ok
aaa/412_e4_pnr	Ok
aaa/421_e2_udr	Ok
aaa/431_rq_aar	Ok
aaa/432_rq_rar	Ok
aaa/433_rq_str	Ok
aaa/434_rq_asr	Ok
aaa/441_gqp_aar	Ok
aaa/442_gqp_rar	Ok
aaa/443_gqp_str	Ok
aaa/444_gqp_asr	Ok

Test automation's useful for:

- Running test at night
  - Reduce wasted time
  - Focus on problem
- Non-regression while
  - Upgrading an equipment
  - Introducing a new element/service in the network

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MTS: References & use cases

- SIP : Telephony AS performance
- Diameter : HSS CX interface
- SIP/RTP : SBC test (pinholing)
- HTTPS/Radius/SMTP/IMAP/POP : billing
- SOAP/IMAP: Voice Mail System
- VoIP testing (Tunisia)

- HTTP/SOAP : SOAP server
- TCP : TCP answer machine

- TCP/HTTP : Anonymous server

- IMS integration testing tool

- AGW integration test

- SIGTRAN
- SIP/Diameter Performance

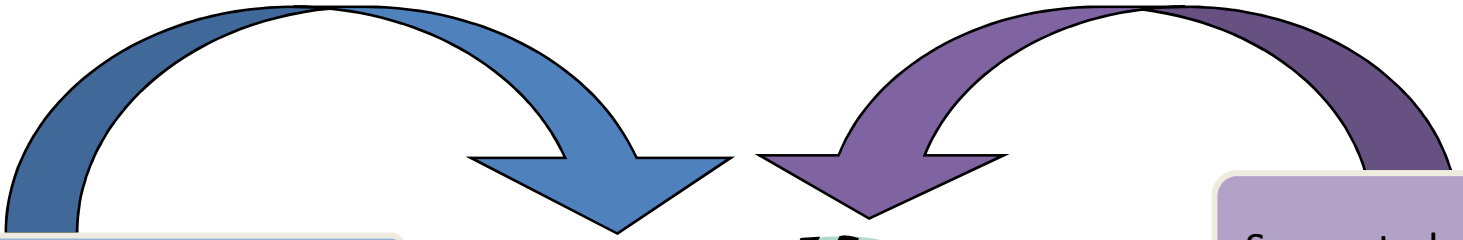
- PSTN test

- SIP/Diameter : Test Lab for engineering school

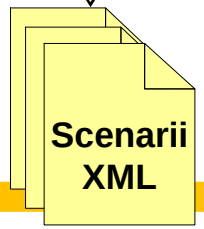
- Integration tool for the whole platform (IMS, FTTH, LTE)

MTS: Technical aspects

Script writing



- Supported protocols
  - SIP/Diameter
  - RTP/RTCP
  - HTTP/SOAP
  - RTSP/MSRP
  - Radius
  - SMTP/POP/IMAP
  - SIGTRAN
  - TCP/UDP/SCTP
  - SMPP/UCP



- Supported operations
  - If/Then/Else
  - Loop
  - Pause
  - Semaphore
  - Goto
  - Finally

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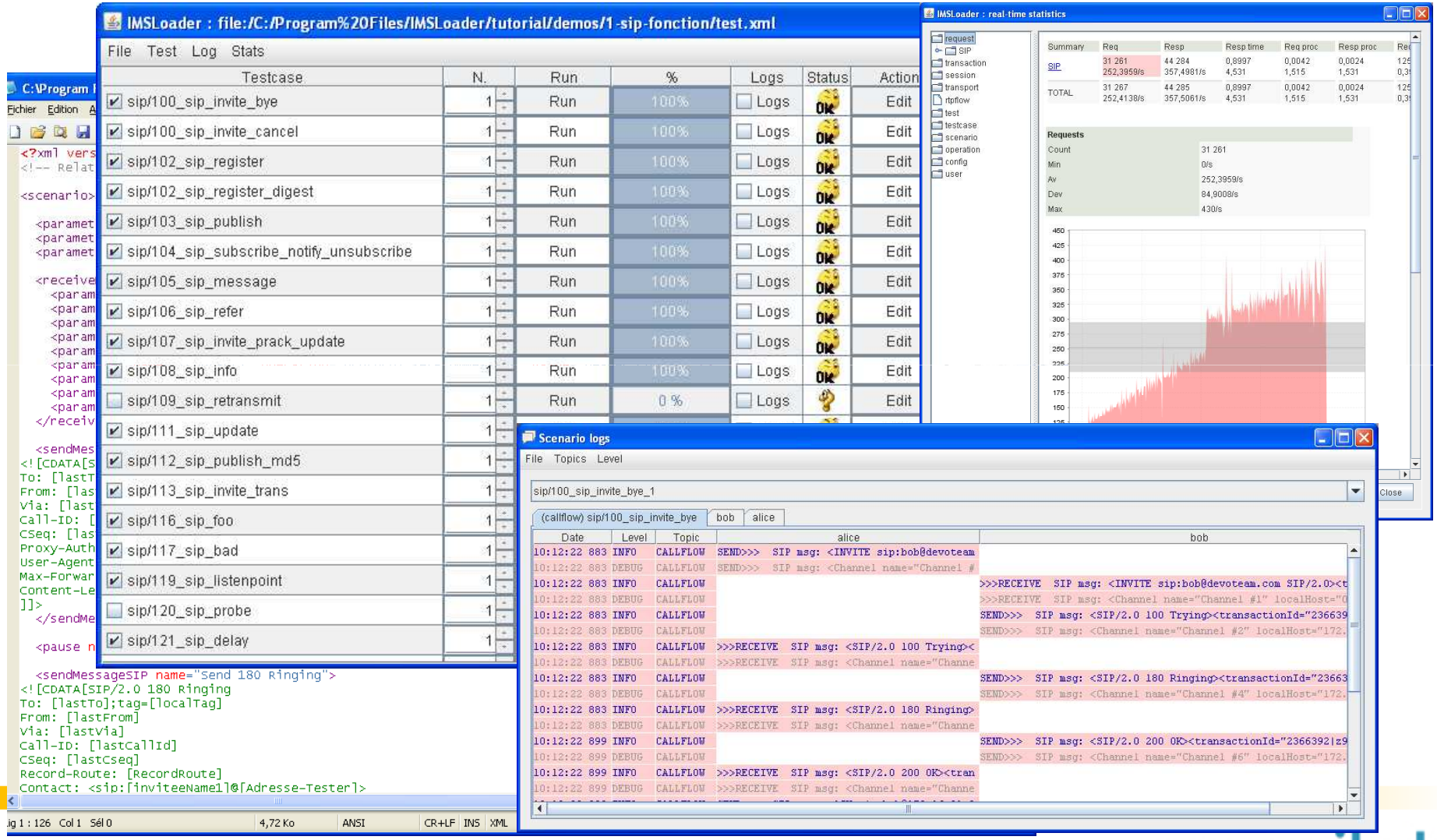
GUI



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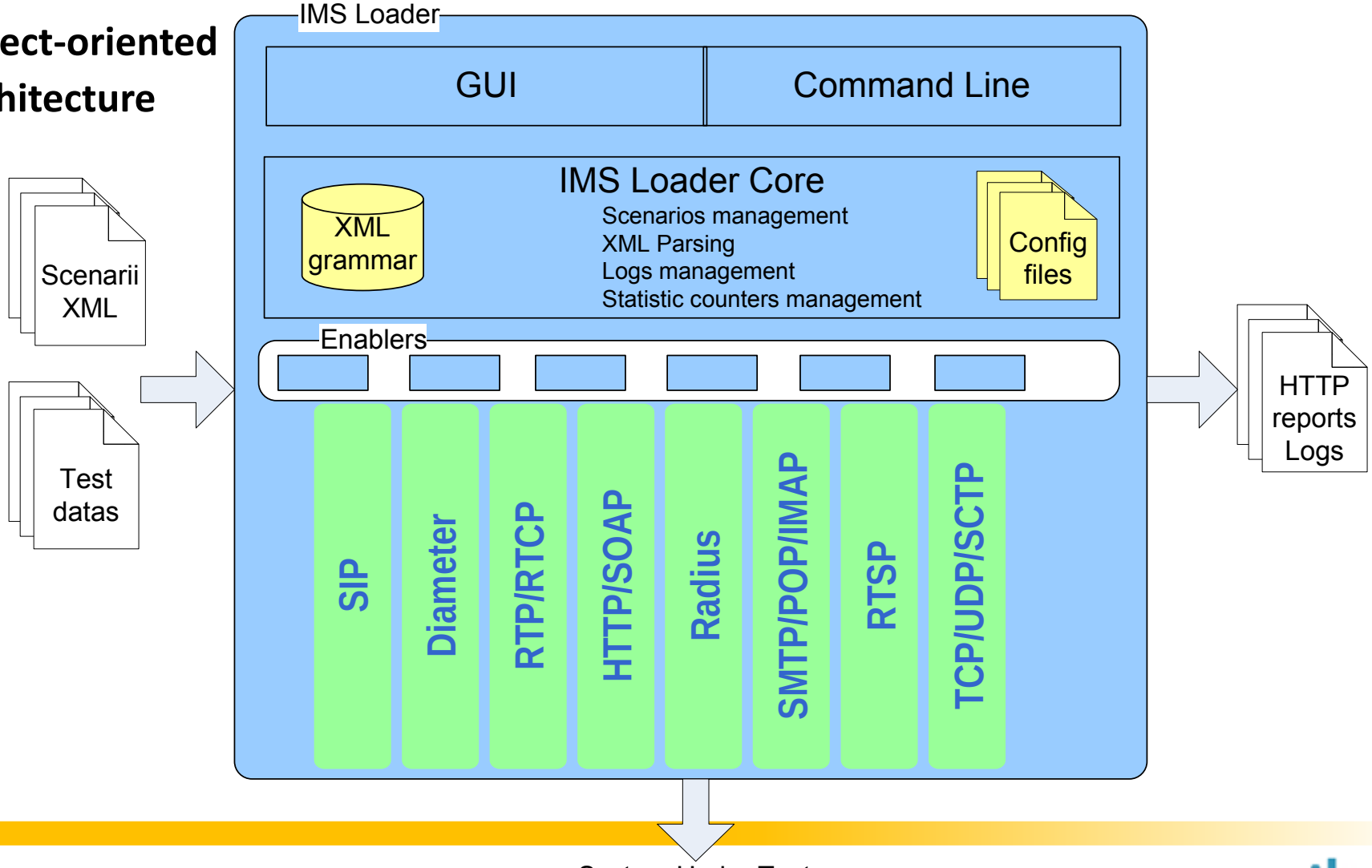
Object-oriented Architecture



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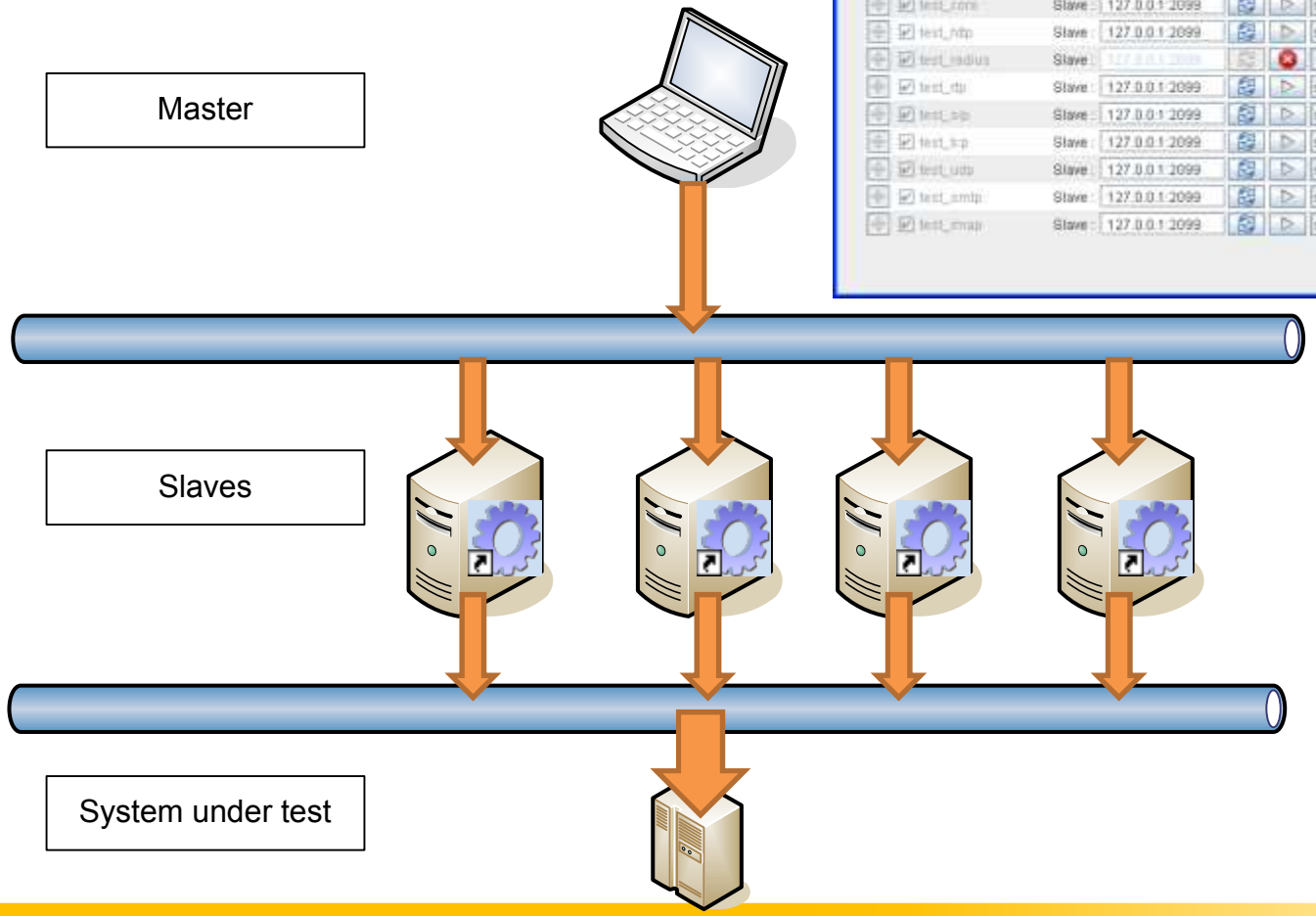
Distributed execution



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Protocol : benchmark

Protocol	Flow Trans/s	Response Time	CAPS	Error Rate %
SIP jain (during 60h)	142	0.674	80	0.002
SIP light	660		220	0
DIAM	1300	0.097		0
RTP (packet size 160 bytes)	5000			0
HTTP	800	0.001		0
HTTPS	600	0.001		0

MTS: Differentiators

- ☑ Tool rationalization
- ☑ Easy to use (XML syntax)
- ☑ Easy to adapt to customer specifics
- ☑ Multi-protocol support : SIP, RTP, RTCP, SQL, Diameter, Radius, HTTP/SOAP, SMTP, TCP/UDP/SCTP, etc.
- ☑ GUI: easy to use & helpful for scenario tuning
- ☑ Hardware agnostic: written in pure Java
- ☑ Built-in reports for log management and statistics
- ☑ Master/Slave configuration available to manage several instances from one place.
- ☑ Pedagogic tool for training exercises

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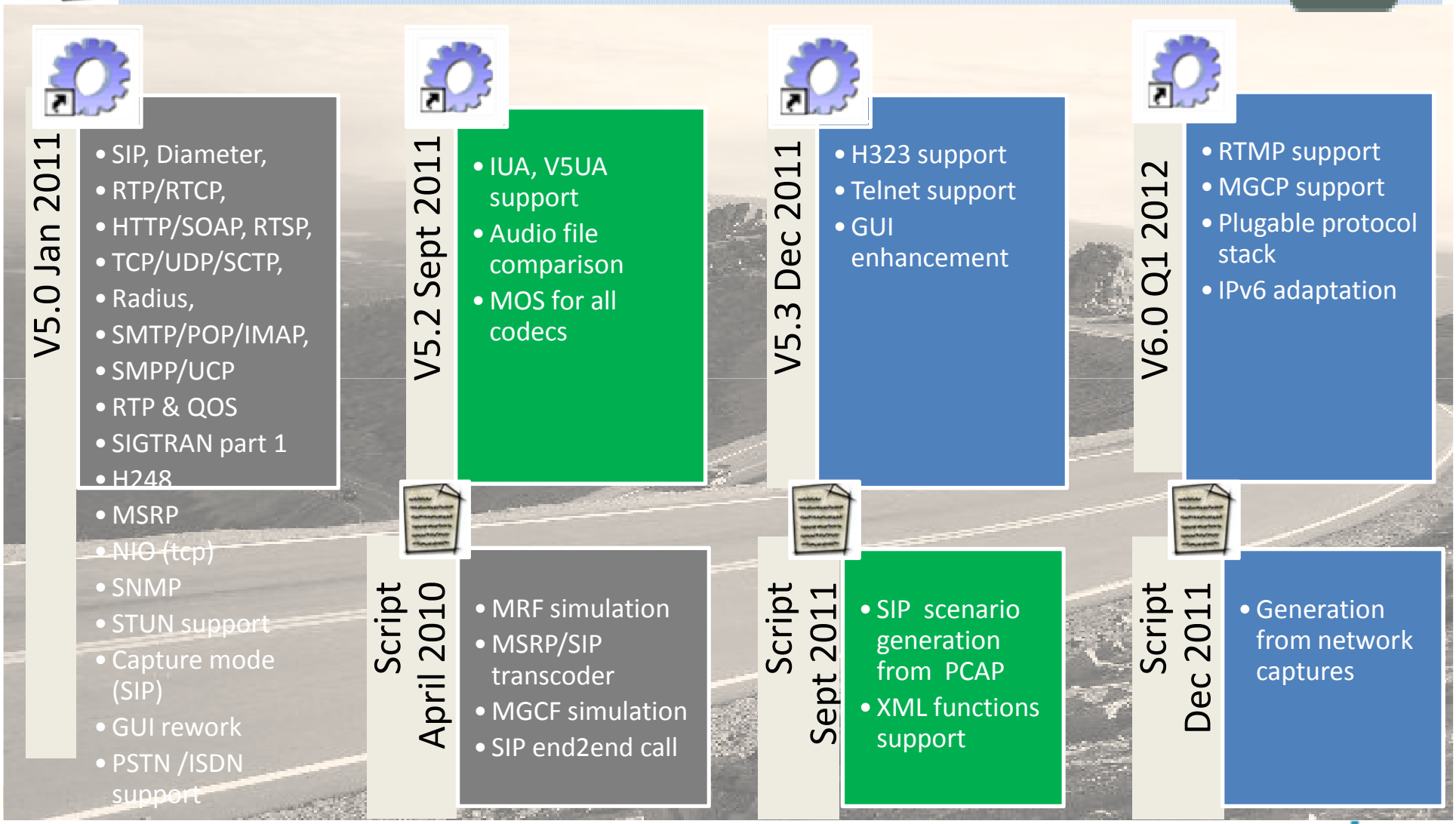
Roadmap



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MTS: ROI

☑ Development phase

- run each night for non regression (Agile development)
- reuse for project & acceptance

☑ Non-regression

- ROI is reached within a year.

➢ Tool rationalization

- Same tool used for different needs.

Voxpilot Application Store

- Reuse of test script
- Own applications Value
- Corp / affiliates synergies

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MTS vs Competitors

Tool	Context	Pros	Cons
SIPP	SIP	Open Source sponsored by HP : -> cost free -> Widely used in SIP testing	No GUI Limited to SIP protocol without SCTP support Lower performance Written in C++ -> not portable
Catapult	IMS	High performance for load testing	High cost of licence Hard customisation Hard scripting
Seagull	IMS	Open Source sponsored by HP : -> cost free Support of XCAP/TCAP	Written in C++ -> not portable Offers Synchronization between instances but not Master/slave configuration
Load-Runner	HTTP/ HTTPS	Performance testing	High cost of licence Complexity of use and customization

MTS: Market

Main targets	Usage
Network operators	Solution validation (non-regression) Network supervision (probes)
Telecom manufacturers	Equipment validation (functional)
Integrators	Solution validation & acceptance (functional & load testing)
AS developpers	Functional testing, non-regression (Agile development)

Thanks

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