



# **STREAMLINING PERFORMANCE VERIFICATION THROUGH AUTOMATION AND DESIGN**

**Presented by Gabor Megyaszi**

## BACKGROUND – HISTORICAL PROBLEMS

- Legacy test cases
  - Long setup and tear down time
  - Non reusable automation
  - Huge amount of data collected, but not analyzed
- Low automation level in SUT deployment and configuration
  - Complex and greatly varying configuration
- No supervision over execution
  - Futile test case execution

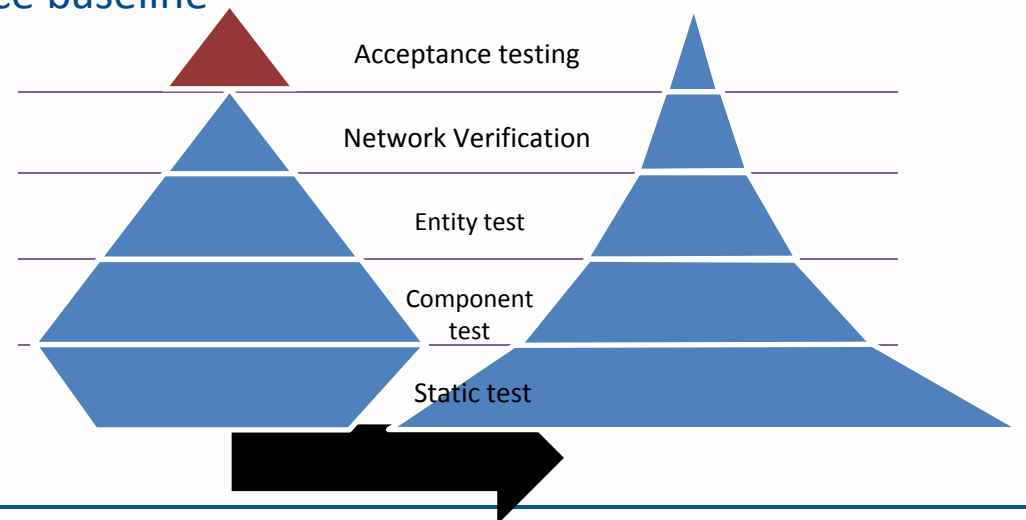
**4<sup>th</sup>**  
**UCAAT** *User Conference on  
Advanced Automated Testing*



## **RENEWAL ACTIONS**

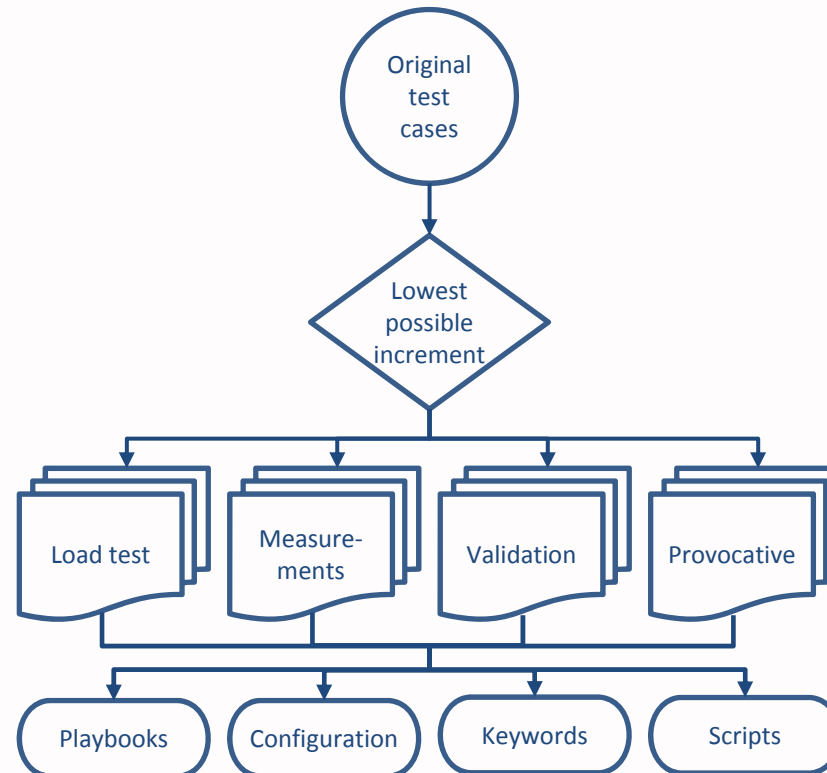
# Refactoring test cases

- Differentiate between load testing and performance validation
- Test on lowest possible level
- Test with smallest possible configuration
- Create for reuse – keyword driven testing
- Infrastructure capability without deployment
  - KPI measurement against reference baseline



# Deployment and configuration design

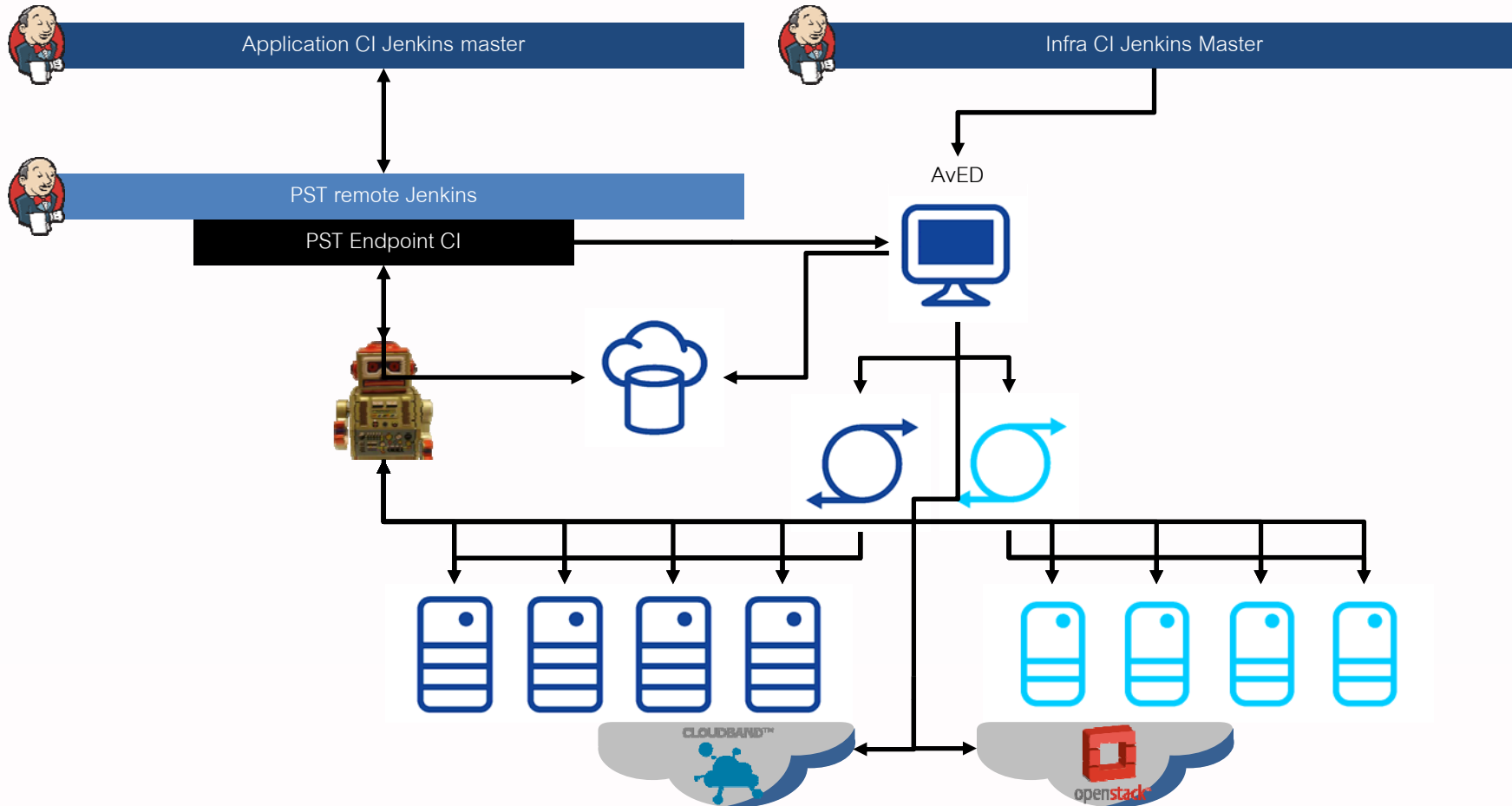
- Design principles
  - Deconstruct
  - Stabilize
  - Standardize
  - Automate



## Automated virtual Environment Deploy

- Performance testing environment creation and on demand deploy
  - SUT and Non SUT
- Environment lifecycle management
  - VM and container
- Multiple triggering
  - Jenkins
  - GUI with manual triggering

# Automated virtual Environment Deploy



→ TestingEnvironment objects

Show  entries

Search:  Clear

name	status	TAS	HSS	Generators	Terminate and Delete Environment
vtas19	deployed	vtas19	HSS_vtas19	GEN1901	<a href="#">✖ Delete</a>
vtas24	deployed	vtas24	HSS_vtas24	GEN2401	<a href="#">✖ Delete</a>
vtas22	deployed	vtas22	HSS_vtas22	GEN2201	<a href="#">✖ Delete</a>

→ TAS objects

Show  entries

Search:  Clear

TAS Name	Networks and IP Addresses	State in OS	Other info	Terminate or Update
vtas05	<a href="#">Show Networks and IPs</a>	<span style="color: green;">CREATE COMPLETE</span>	<span style="color: green;">Created by admin</span> <a href="#">Download template</a> <a href="#">Get IPs</a>	<a href="#">✖ Delete</a> <a href="#">Update System</a>

→ IPSL\_Generator objects

Show  entries

Search:  Clear

Stack Name	tas name	resource name	State in OS	Networks and IP Addresses	Templates	Terminate and Delete Generator															
GEN0501	vtas05	vtas05_ipsl_g1	<span style="color: green;">CREATE COMPLETE</span>	<table border="1"> <thead> <tr> <th>Network</th> <th>IP</th> <th>Floating</th> </tr> </thead> <tbody> <tr> <td>VTAS-05-EXT-CP1-EL4</td> <td>10.254.208.141</td> <td>False</td> </tr> <tr> <td>VTAS-05-EXT-CP2-EL5</td> <td>10.254.208.173</td> <td>False</td> </tr> <tr> <td>VTAS-05-infra-pub</td> <td>10.39.189.26</td> <td>True</td> </tr> <tr> <td>VTAS-05-infra-pub</td> <td>172.24.17.103</td> <td>False</td> </tr> </tbody> </table>	Network	IP	Floating	VTAS-05-EXT-CP1-EL4	10.254.208.141	False	VTAS-05-EXT-CP2-EL5	10.254.208.173	False	VTAS-05-infra-pub	10.39.189.26	True	VTAS-05-infra-pub	172.24.17.103	False	<span style="background-color: #ccc;">AvED IPSL Generator v2.1</span> <a href="#">Download template</a>	<a href="#">✖ Delete</a> <span style="color: red;">✖ Delete all vtas05 generators</span>
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VTAS-05-infra-pub	172.24.17.103	False																			



# Test environment parameter handling

Python and Django based web application

- Store environment information
- Store traffic profiles / profile elements
- Environment selection for CI
- Environment configuration

## Test Environment Parameter Handling

WELCOME, LENDWAY | [LOG OUT](#)

Environment name: vTAS17

**Environment**

Reset changes Save Save as

Env name:

O&M IP:

User:

Password:

Reserved for CI:

CI branch:

**Profiles**

Reset changes Save

Profile name:  Git branch:  Filter

Clear filter

**Generators Remote IPs**

Reset changes Save

Generator	O&M IP	CPU amount	OS type	Local IP Pri.	Local IP Sec.
GEN1701	10.40.87.175	4	Windows	10.40.88.185	10.40.88.218
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

**CALLS** | [OLCM](#) | [REGISTRATION](#) | [SCP](#) | [ORIGHOMING](#) | [RORF](#) | [LDAP](#) | [TERMHOMING](#) | [XCAP](#) | [AMS](#) | [EXTIP](#) | [MESSAGE](#)

Reset changes Save Add new scenario

Gen name	Type	Protocol	Cpucore	Localportprimary	Localportsecondary	Userpart	Userpartb	Routefqdn	Routefqdnb	Atcfaddress	Atcfprotocol	Imsiprefix	Msisdnprefix	Idlength	Idlengthb	Releasefromb	Panitype	Panival
GEN1701	ORIG	TCP	0	5070	5070	49177460	49177460	public.ftvtas.tas.com	ipv4.mgwgen.cmn.orig.ftvtas.tas.com	asdf	TCP	26203060	49177460	4	4	False	3GPP-E-UTRAN-FDD;	utran-cell-id-3gpp=
<span>Add new profile</span>	<input checked="" type="checkbox"/>	Profile		Scenname	Bhca	Useramount		Atcfvalid	Callduration	Videocall	Reinvitesending	Errorcase	Srvccpercent		Initreg	Rele		
		base (vTAS17)		Orig Call	450000	10000		<input type="checkbox"/>	30	<input type="checkbox"/>	0	<input type="checkbox"/>	0		<input type="checkbox"/>			
GEN1701	ORIG	TCP	0	5070	5070	49177460	49177460	public.ftvtas.tas.com	ipv4.mgwgen.cmn.orig.ftvtas.tas.com	asdf	TCP	26203060	49177460	4	4	False	3GPP-E-UTRAN-FDD;	utran-cell-id-3gpp=
<span>Add new profile</span>	<input checked="" type="checkbox"/>	Profile		Scenname	Bhca	Useramount		Atcfvalid	Callduration	Videocall	Reinvitesending	Errorcase	Srvccpercent		Initreg	Rele		
		base (vTAS17)		Orig Call	450000	10000		<input type="checkbox"/>	30	<input type="checkbox"/>	0	<input type="checkbox"/>	0		<input type="checkbox"/>			

## Test execution

- ROBOT framework (generic automation framework for ATDD)
- Minimum viable unit
  - Test case
  - Environment
- System health check at start
- Continuous traffic and system check
- Collection of relevant data
- Automatic verdict

## Results in numbers

	Previous method	Renewed method
Deployment time	8 hours	30 minutes
Configuration time	10 days	17 minutes
Test execution time	3.7 hours	1.3 hours
Futile test execution ratio	27% (release average)	<3%
Number of parallel execution	Maximum 14	Maximum 58

## Benefits

- Faster feedback to development
- Decreased tuironover time
  - Broader test set
  - New test cases
    - Interface tests
    - Single container tests
  - More time for exploratory testing
    - Chaos and robustness