

## Q&A:

# A Day in the Life of an Application Performance Engineer

### Questions Asked by Attendee

Q: Does it connect to other tools like JMeter or do we need to use LoadRunner?

A: -- The integration with Load Runner and Performance Center is unique as it combines both technologies into one product. However Shunra is used frequently with many other tools and engineers usually use our open API to control both tools at the same time.

Q: Are there tools that you would use, to determine application elasticity, performance, and scalability so that they'd be determined for "cloud" enablement.

A: --Absolutely – our approach is to bring your test environment into the Cloud. By using our Cloud software (which is actually called "The Cloud") you can create realistic test environment inside a test Cloud infrastructure. We are just about to release a white paper on that topic and if you need more information please contact [ofer.fryman@shunra.com](mailto:ofer.fryman@shunra.com)

Q: Are there tools what you work with for the applications themselves?

A: --If I understood correctly then yes our tools are used for application performance testing and can be installed with the application server or client

Q: Thank you for the answer. So, does LR's bandwidth limitation have any drawbacks as compared to SHUNRA's or do they both essentially do the same thing with the same quality?

A: --The two are completely different - Load Runner does it in the application layer e.g. start/stop the application based on how much the user mode buffer sends. This approach does not work off course and does not emulate a WAN connection.. Shunra works after the TCP/IP stack which means we work on actual Packets. The main issue is that application behave completely different if you pause them in attempt to throttle what they are sending or if you let them run while the operating system is in charge of sending packets over TCP.

Q: How is using Shunra WAN emulation different from using LR limited bandwidth set up? What are the advantages of Shunra vs. the LR model for limiting bandwidth?

A: --Shunra provides real WAN bandwidth limitation which looks at real packets, queues and overheads and is configured accordingly in an easy to use GUI. The advantage is using realistic Bandwidth throttling which produces results as on a real WAN – see previous answer for details.

Q: is network capture is some kind of a sniffer?

A: --Absolutely not it does not capture any data. The Network catcher sends traffic rather than capture. Based on a patent pending algorithm which utilizes an insignificant portion of the available bandwidth. --

Q: Is Network Capture tool has features that shows graphical representation of where the bottlenecks lies as per the performance of the application is concern?

A: --Not as a stand alone. However if you combine it with Shunra's WAN Emulation then yes we can identify where the bottlenecks are

Q: Can you go over how to model the parameters (latency etc) entered into VE Desktop?

A: --We can schedule another WebEx on this one. However in the meanwhile there are a couple of ways to configure: 1. Manually configure latency, jitter and Packet Loss 2. Use an XML file with samples of latency, Jitter and loss. These samples will change the Emulation behavior dynamically 3. Integrate to the Network Catcher or other monitoring tools to get real Network conditions

Q: My question just got answered, thanks!

A: --Good--

Q: Is the Shunra Suite one package that includes all the necessary tools for LoadRunner and QTP, or are they packaged separately?

A: --Usually separate purchase however we packaged them frequently based on customers needs

Q: Is there an additional load on LR Loadgens while using the Shunra emulation tools, as there are with built in LR performance monitors?

A: --There is however Shunra's foot print is very light especially if you compare it with other integrated tools. This is something that HP demands now from any integrated part of Load Runner and Performance Center. You can find exact specification in the user manual

Q: You mentioned you had 20 Load Generators; how do you formulate the number of servers to generate load, ie. what if you had 1000 concurrent user requirement?

A: --It pretty much stays the same way as before however you may want to split the users to different remote sites and in that case each Load Generator behaves as one remote site. For example testing two sites at once require two Load Generators--

Q: Are there reports that show where bottlenecks are occurring (i.e. due to latency/packet loss/server performance) and is it possible to determine specific transaction issues?

A: --Absolutely this is a part of our application performance analysis technology--

Q: What is the maximum bandwidth, maximum latency and a maximum packet loss?

A: --It depends on the type of solution if you are going to use Shunra's appliance then the you get maximum bandwidth of 10G, latency of 10 minutes, and 99% loss however you can create 100% with other features such as disconnect. The Shunra for HP comes with 45Mbps bandwidth, Latency valid range is 0 — 81000 msec and 90% packet loss and again you can create 100%--

Q: Will this presentation be available after this meeting?

A: The webinar recording and slide deck have been posted at <http://www.vivit-worldwide.org/article.cfm?id=1201>

Q: Do you use any mathematical models OR quantitative models during the performance testing exercise ? If Yes, what are those ?

A: --Yes however they are not theoretical. They are a part of the Emulation like Gilbert Elliot loss model, Sinus latency and loss model and many more.

Q: Has the network catcher software been updated to use newer version of open source components (Apache, PHP, Java JDK).

A: --Yes and no: The Network catcher went through a complete redesign and re-architecture so most of the components listed do not exist any more like we use IIS instead of Apache --

Q: Can I download a copy of this webinar for later viewing?

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Q: If we see a response time of 5 sec in one environment for a transaction can we extrapolate the response time for same transaction in another environment using any tool or mathematical formulae?

A: The Shunra technology is based on empirical experience, not mathematical modeling. Extrapolation must take in account factors like memory and system limitations, there is more to response time than the network.

Q: Are there any tools/mathematical formulae to extrapolate response times seen in one environment to those in a different environment?

A: See previous response - you can extrapolate response time from 1 to 2 users or 5 to 10, but it will be at best an educated guess, since there are factors that must be accounted for, like memory and system limitations.

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Q: To use your product would your hardware performance testing environment have to match the production hardware environment?

A: Shunra technology recreates the experience of packets in the environment, the delay of the packets crossing the pipe, not the physical length or the number of hops, so you can recreate a very complex network environment within a single appliance.

Q: What kinds of objections did you face before convincing to use Shunra?

A: The most common objection is the lack of knowledge that network conditions make a huge difference, most people are still unaware of the impact of latency and other network conditions.

Q: Does your suit support ApDex statistics?

A: not currently, maybe in the future.

Q: how important is it to have the performance environment match the production environment?

A: We recreate the experience of the packets in the production environment, not the behavior of the individual components. So you can recreate a large network environment with single appliance.

Q: Do you use Project Management (PMI) methodologies to establish your SLAs with customers?

A: While we have developed a methodology, it is not imposed on our customers, we provide best practices and methodology advice on request, or as part of our consultancy engagements.

Q: What % of your customers uses the Shunra VE Desktop with QuickTest Professional?

A: QTP is used mostly on functionality test environment. We allow to introduce network conditions to the functional test, so delivery issues can be identified very early during the testing phase. In addition, the combination of additional tools like Device Anywhere, or Jamo Solutions allow to create tests environments for wireless devices, that with the addition of Shunra for QTP allow to recreate a live wireless experience.

Q: Have you incorporated testing app classes vs. all apps, in order to reduce testing scope?

A: Experience has shown that assumptions drawn from application class based testing may not predict the actual performance seen for any specific business process running on the WAN. Certain "off the shelf " apps are known to be challenging but unless exposed to the precise conditions of production network performance the degree and frequency of problems cannot be anticipated

Q: Clarification. Have you implemented an app class testing philosophy - group apps with similar architectures, similar components, in order to understand how apps may perform in a new data center after migration? (Use Shunra latency injection for these app class groups vs. all apps)?

A: See above

Q: What do you think is other major factor that will affect testing that we will get in Professional version and not in Advanced version?

A: In Professional mode you can import Network Catcher recordings as the basis for circuit performance in your test. These recordings are taken from the Production WAN by generating Shunra sourced traffic and recording the variable latency and packet loss of that traffic across your deployed production link. The dynamic nature of the actual network is manifested in variable latency (jitter) that cannot be programmed in Advanced mode.

Q: Hi Ravi here !!! what extra factor you think is a major factor will we get in professional version

A: See above

Q: Sounds like if we are doing Performance Testing without the Shunra WAN Emulation, we are simply 'spinning our wheels'; as supported by your practical 'real life' example...representing a PASS from a large 1GB LAN environment, then FAILED once in Production? (I cannot imagine how much time that wasted, and rework cost, not to mention the opportunity cost lost)

A: Correct. In effect the results displayed in load tests using no WAN impairments will only recreate the Local LAN end user experience.No visibility into Remote user performance is possible without Shunra or deploying remote generators on the production network. Anyone who has attempted this tactic knows the costs and logistical challenges associated with this alternative.

Q: Are there both Software & Hardware components to the entire Shunra offering? If so, perhaps you could help me to understand how these work with LoadRunner or Performance Center; or, simply within any other environment to enable you to simulate WAN environment conditions for varied technologies / pre-production labs? Thanks

A: Shunra provides WAN emulation with both hardware and software solutions. The hardware consists of an appliance acting as a centerpoint of connectivity in the test lab. Clients, load tools, and target application servers are connected and as the traffic traverses from the clients to the server through the Shunra, the packets are impaired exactly as they would on the deployed Production WAN. Integration with HP LoadRunner is achieved with a Shunra software agent installed on the HP Controller. Scenarios,Scripts # of Virtual users ect... can all be defined and executed from the Shunra Modeler Console programming interface.. Once the test completes the results data from both HP and Shunra are combined and displayed in the Shunra Reporter. No direct integration is available between the hardware based solution and Performance Center..(LoadRunner only).

The VED for HP software solution is engineered to enable WAN emulation on a per generator basis to be defined ,executed, and test results reported within HP LoadRunner and Performance Center. No additional hardware or programming interface is required. With this tight integration with HP those testers familiar with the look and feel of those HP solutions can easily incorporate WAN impairments as part of their test methodologies.. Impairments defined and their impact on application performance can all be correlated and viewed with the HP Analysis function.The decision to use the Hardware or Software only solution (or both) depends principally upon the complexity of the WAN topology you are attempting to replicate. A quick conversation with a Shunra representative can easily determine which of these options is most appropriate for your testing requirements

Q: Sounds like this really helps to elevate the discussion of performance issues identified; so that both the Infrastructure & Development teams can collaboratively understand the Application and Infrastructure issues together....do you find this on your engagement also? SEEMS LIKE A GREAT OPPORTUNITY!

A: Absolutely. This capability offers value to both the Networking and Software Development/QA organizations.Shunra makes visible the impact of Network performance on applications as well as application load on the Network.

Q: Can you tell me more about the Network Catcher, and why that is so valuable, and how it specifically works with setting up Performance Tests with WAN Emulation? Thanks

A: Network Catcher is Shunra software deployed in the Production Network. It is programmed to generate synthetic traffic in whatever Protocol and Port you wish and direct that traffic across a Production WAN link to a device on the far side that will respond. The Shunra sourced traffic performance will be measured and recorded in terms of the variable Latency and Packet Loss. A single Network Catcher can record up to 100 connections simultaneously in durations as long as 24/7 for up to 30 days. Once recorded the link performance can be imported and replayed into both the hardware based and VED for HP WAN emulation scenarios. Use of these recordings provides a degree of accuracy of circuit performance recreation unsurpassed by any other method.

Q: What advantages the Shunra Wan Emulation tools give over the Linux qdisc tool. qdisc tool allows you to limit bandwidth, control latency etc ...

A: Shunra emulation is programmed via the HP interface. No need to configure and launch an external app. Results are displayed and can be correlated with the HP analysis. Impairments and TRT can be examined on the same report to determine root cause. Use of imported Network Catcher recordings as the basis for circuit performance provides a level of emulation accuracy unmatched by any other tool.

Q: How often do you have to test apps which use service calls to other apps and what is the currently best accepted method of instrumenting those service calls (remote procedure calls) so that the performance of all the resulting procedure calls are known when the call returns to loadrunner?

A: block and wait for the remote call to complete

Q: Thank you... much appreciated!!

A: --unanswered--

Q: No audio... office phones does not allow long distance call outs. Will presentation be available offline afterwards?

A: Hello, William. Yes, the recording will be available on the Vivit website within one week. You'll receive an email tomorrow with the URL link.

Q: Does Network Catcher require a device be installed at the distant end? Or does it rely on Ping responses alone?

A: No. It can be a single ended solution. You can choose to use Ping as a protocol for traffic or you can programm any IP based Protocol amd Port number to represent your traffic. A series of syn/acks will be generated to a target device on the far side of the link to be recorded and we will measure the variable latency and packet loss of those syn/ack packets.

Q: Can you expound a bit on what Network Catcher actually captures - what kinds of data is recorded?

A: In the current release of the product Latency, Jitter, and Packet Loss. Stay tuned for enhanced capabilities in a future release soon

Q: "Like to have" is different from what is usually given. 80% of the time, we are given a UAT that tis 50% of the prod. We tell teh client we can only give you the confidence to the UAT level infrastructure and not for the production level . How do you deal with demands from clients asking us to certify on a prod level infra when they are giving us only the smaller side environment

A: A difficult question. The proper answer should articulate the desire to recreate as close as possible the infrastructure in place in Production. From Shunra's perspective we can at least guarrentee that the circuit recreation is spot on with Production. Extrapolating conclusions from results of offline tests due to lack of mirrored production network assets will introduce a degree of variability. This is regrettable but in certain cases inevitable. If the validity of results is questioned the alternatives are limited to testing off hours on the Production Network.(Difficult and less accurate because the Production Network behavior off hours does not mirror cicuit performance during normal business hours). Or in too many cases..no testing at all.The least desirable strategy and carries with it enormous risk of failure.

Q: What ways can we determine the packet loss etc

A: Use of Network Catcher recording tool

Q: Does network catcher come as standard or is it an add-on

A: It is an add on option

Q: Can Shunra work with multiple end points? for ex: user to datatbase and second part between two datatbases (to simulate replication latency)

A: The appliance based solution can support multi-tier infrastructure as long as the databases can be included as part of the devices connected to the appliance. We could then break out delay and report the tier to tier delay component. The software solution would see the data replication as a "Cloud" and report results of transactions from the backend delay incorporated into the overall TRT.

**Q: Do you offer on site demo's of the tools and integration with Quality Center?**

A: Yes, Shunra offers onsite demos of all of our products. Aside from Performance Center v11, Shunra doesn't have any explicit integrations with Quality Center. All of our products do support APIs and can be integrated with Quality Center, or most any test automation platform. Please contact Shunra ([sales@shunra.com](mailto:sales@shunra.com)) with any specific integration questions and we will be happy to discuss them with you in detail.