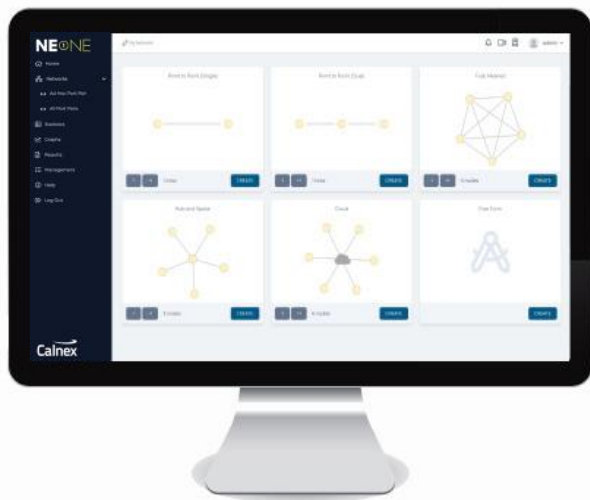NE ONE
ENTERPRISE
By Calnex

testforce

ACCELERATE APPLICATION READINESS WITH AN ACCURATE, CONTROLLABLE AND REPEATABLE TEST NETWORK

Redesigned from the ground up and drawing on over 15 years of experience in the field, the new NE-ONE Enterprise edition (formerly known as INE Enterprise and INE Ultra) is leading the way in Network Emulation. Backed by ISO 9001:2015 certification for the development and provision of Software Defined Test Network products and associated support you can be sure of a quality product that's made to the highest standards.

Whether you're rolling out an enterprise business critical application like SAP or SharePoint, consolidating data centers, evaluating SD-WAN, VDI or WAN Optimization products, moving to the Cloud, or testing a new mobile app, NE-ONE Enterprise provides organizations with a way to create real-world network conditions in which to analyze, predict and verify application performance before deploying into potentially challenging network environments.

The insight NE-ONE Enterprise provides allows businesses to effectively manage their digital products and brand, reducing deployment costs and risk, mitigating remediation expense and the impact on resources at the same time as improving quality.

FAST, FLEXIBLE AND EASY DEPLOYMENT

With a range of platforms and models to choose from you can decide on the best features that are right for your organization. Choose from our ready-to-use Hardware or Virtual Appliances, both of which are available in a number of models to suit your needs. Certified Partner Ready for VMware's vSphere, NE-ONE Enterprise provides easy integration with your existing environment while leveraging the scalability and cost benefits of virtualization. Openstack and KVM support is available too.

Inline, Sophisticated Routing or Both

Directly connect your test equipment inline (Layer 2) or configure to route (Layer 3) and impair traffic in VLAN and multi-IP configurations such as router-on-a-stick. At the same time other traffic, not under test, can flow through the test network unimpaired.

Every Port to Every Port Connectivity

"Route" traffic from port-to-port or port-to-multi-port, including both physical and Soft Ports, without any limitations on connectivity. This includes "routing" in bridged networks.

Network Address Translation (NAT)

Configure Static or Dynamic NAT, including Port Forwarding, on any port to mimic real-world devices including firewalls and routers. NAT is performed after a network impairment is applied to a packet which means that multiple devices under test can experience different network conditions.

Continuous Network

Deploy on the edge of the production network allowing users to test application performance from their usual location but as if they were physically at another location.

Enterprise Management

Optionally integrate the NE-ONE Enterprise into organization-wide LDAP single-sign for authenticating users against their existing login credentials. Add the NE-ONE Enterprise into standard security and monitoring systems using built-in SNMP support.

Soft Ports

Use the Port Manager to create hundreds of new Soft Ports as subdivisions of physical ports. Soft Ports can be used in a number of ways including allocating users their own Soft Ports allowing them to create their own test networks that are entirely independent from other users on the same NE-ONE appliance. Alternatively use Soft Ports to create large-scale test networks with hundreds of devices connected removing the need to purchase expensive multiport appliances that cannot scale-up.
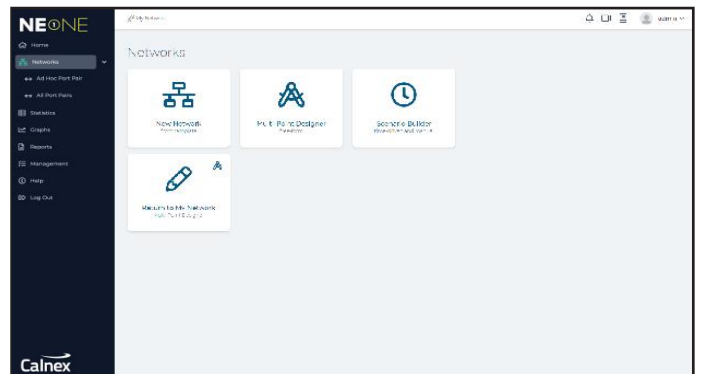
Operational Scaling

NE-ONE Enterprise's multi-user design, Soft Ports and scenario sharing capabilities protect your investment and enables you to scale-out to support multiple teams and scale-up the number of concurrent tests, thereby lowering the total cost of ownership, environmental footprint and system management overhead, while conducting more complete tests or more tests in parallel.

EASE-OF-USE

At the heart of NE-ONE is its intelligent user interface which is designed to make setting up and running a real-world test network achievable in a few minutes. NE-ONE eliminates the need to spend hours learning complex tools with cumbersome tabular interfaces and scripting. Instead, just use your preferred browser (no plug-in required) and choose from the Network Topology Wizard, Scenario Builder or built-in templates to get started.

Network Topology Wizard

The Network Topology Wizard eliminates the need to manually draw and configure the number of links or nodes required to create the test network. Simply select from a choice of ready-made network templates including Point-to-Point, Multi-Point, Hub & Spoke or Cloud and the test network is created for you in seconds.

For advanced users the Free-Form Network Designer allows you to draw out your network topology within the web browser. Drag and drop nodes and circuits onto the canvas and add routing and impairments between them to mimic the real-world network.
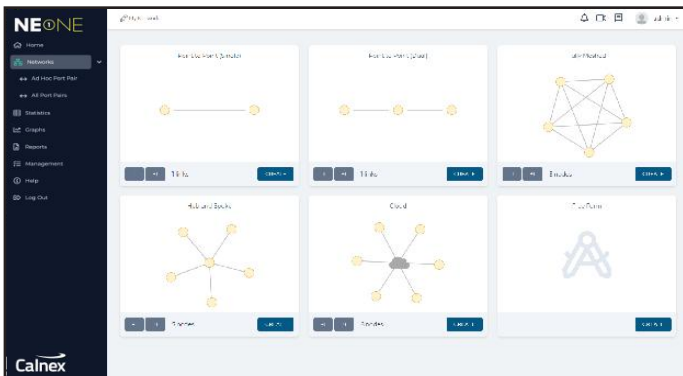
Automated Routing

Using pathfinding algorithms, the Automated Routing feature saves considerable time in automatically generating routing tables from subnets. This is particularly useful in complicated networks involving multi-hop, meshed, hub and spoke and cloud set-ups. It achieves this by eliminating the need to manually populate routing tables by automatically determining which link should be the next hop in the path to reach the final destination via the shortest path.
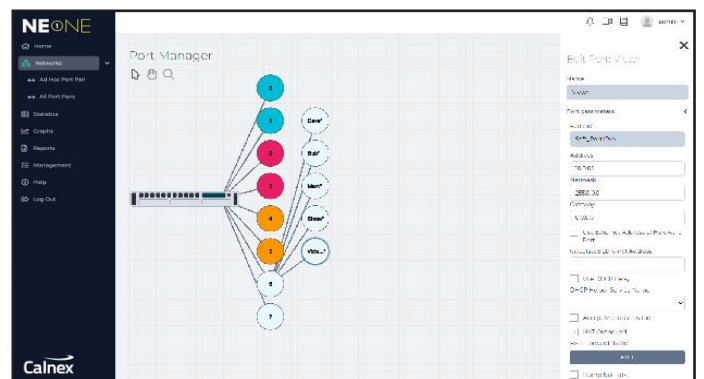
Out-of-the-Box Test Networks

NE-ONE Enterprise comes pre-installed with a wide range of different network types and example profiles for LAN, WAN, Cloud, Satellite (Starlink/OneWeb/Iridium/O3B), Mobile, DSL and WiFi saving you time having to create them from scratch. Simply select your required environment and run your test. Of course, you can adjust any of the parameters or add your own custom settings.

Port Manager

Use the Port Manager to create Soft Ports from physical ports or Soft Ports from other Soft Ports and assign settings to the new port including IP Address, Mask, Gateway, DHCP forwarder, accept multicast traffic and NAT settings. Furthermore create Port Pairs with a friendly name and allocate to one or more users.

Advanced Packet Handling

Classify, route, filter and selectively impair traffic by any packet field within any protocol layer (2-7) using a Wireshark®-like syntax. Bridge and/or route traffic via the emulator enabling you to mimic the complexity of your real world network. Easily add your own protocols.

EASE-OF-USE

Satellite Links and Constellations

For satellite networks mimic make-before-break switching to emulate the handover capability at the IP level in order to reproduce the time delay required in transmission while beams and satellites are being transitioned.

Intelligent Packet Replay

QA Teams and Network Engineers need to reliably recreate real-world application traffic flows for realistic and useful application performance testing. NE-ONE's Intelligent Packet Replay feature extends packet replay by properly taking into consideration the test network characteristics. Application traffic can be intelligently replayed from one or more nodes in the test network to mimic its real-world counterpart.

Packet Capture files can be large and complex making it difficult to identify application flows to replay. NE-ONE automatically analyzes and displays application flows, conversations between clients and servers, making it easy to select from the web GUI.

Custom Filtering allows quick and easy selection of the streams to be either replayed or ignored, from the PCAP file, during a test. The result is fine grain control over filtering and routing with no inherent limitations on number of streams that can be selected.

NE-ONE makes it easy to scale-up testing mimicking multiple clients, servers and other devices, that do not need to physically exist, so that you can understand the impact on associated application performance. Historical graphing provides faster access to test results in which to perform networked application performance root cause analysis.

Superior Real-World Impairments

Apply one or more impairments from categories that include bandwidth, congestion, latency, packet loss, errors, fragmentation, reordering, duplication and more! With more than 100 parameters to choose from NE-ONE combines realism and accuracy in a Software Defined Test Network that allows you to test applications over a range of controllable and repeatable scenarios.

EASE-OF-USE

Congestion

Easily create and vary network congestion to make a link appear that it is carrying more data than it can handle typically resulting in queuing delay, packet loss or the blocking of new connections.

Cisco QoS Class of Service Handling & Taffic Shaping

Model Cisco's (and other similar) QoS class of service and traffic shaping algorithms to test an application's ability to work with Cisco QoS classes, with or without traffic shaping.

Network Scenario Builder & Player

The unique Network Scenario Builder & Player, along with the scenarios themselves, are one of the key features available across the NE-ONE family that allow for a fully automated test network. Providing almost unlimited possibilities for recreating what happens in the real-world it lets you easily create time-based network scenarios to test how applications handle variations in network quality and availability. Rapidly create a chronological network experience by combining different and/or other scenarios together to be run over time.

Handle Rapid Variations in Network Parameters

When you're dealing with networks containing fast moving objects, such LEO satellite constellations, aircraft in flight, vehicles on the move or train journeys, where network parameter values are changing rapidly, using a limited set of fixed values isn't going to deliver the realism you need to achieve in your test environment. In a similar way to modern spreadsheet applications, the NE-ONE Enterprise enables you, without the need for programming, to use variables from time-based tables and/or time-based formulas, wherever you can enter static numeric or text values. This allows you to easily automate dynamic changes in network impairment values, and network routing over time.

1.Use of Table-based Value Changes

Tables containing the different values for specific variables over time can be uploaded into the NE-ONE and these variables can be used to control how impairment or routing parameters change over time to create highly realistic representations of rapidly changing network conditions applications may encounter. These variables can also be used in formulas, for example, to create the effect of two objects moving in opposite directions, one may have a formula involving x and the other –x ("minus x").


Import tables of different network parameter values and use these to run tests in rapidly changing network conditions. Loop and repeat as needed.

EASE-OF-USE

2.Use ofFormulas

As well as using table-based variables, formulas can directly use the time since start variable (t). Additionally, using formulas that include modulo (clock) arithmetic on the time (t), where numbers "wrap around" when reaching a certain value, enables the use of variables and equations to create a range of different looping network conditions to simulate highly dynamic communication links. In addition to the standard functions you might expect, such as sin, log, min, and max, we have added some 'convenience functions' including 'convergent sin' (a sin curve that gets smaller and smaller in amplitude until it's zero).
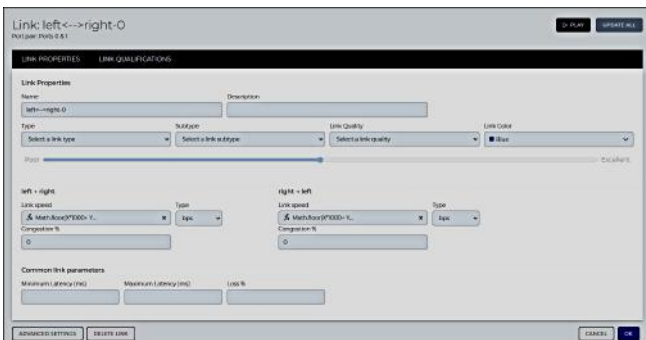
Use formulas to introduce looping network conditions as required.

3. Custom code

Sometimes single line formulas aren't enough to achieve what you want, and for this we allow you to insert your own custom code (in JavaScript) which of course can include if statements, while loops etc and function definitions. This code can manipulate impairment and routing parameters directly, or indirectly via variables and formulas. You can use custom code to define your own 'convenience functions' too.

Traffic Generation

Generate both internal and external traffic using real packet flows to create load in the network to simulate certain network conditions for another application. The traffic generation itself can be adjusted via numerous parameters, such as VLAN id, UDP/TCP, source address, destination address, TTL, packet data, packet size, packets per second and bits per second.
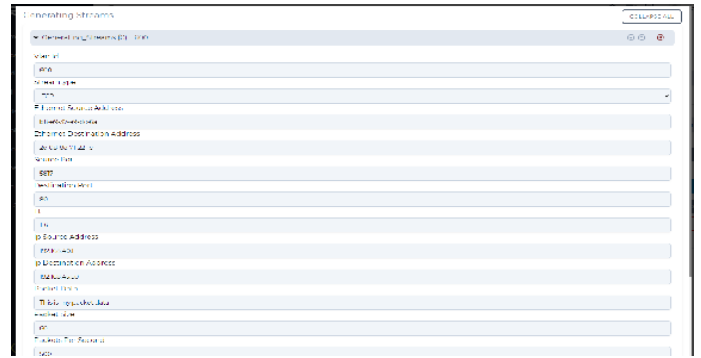
Cloud Networks

Cloud, hub-and-spoke, meshed and partially meshed networks that have multiple links between nodes can be difficult to draw out using regular tools. Thankfully, NE-ONE Enterprise's Cloud Feature simplifies this task and accelerates the test setup as it lets you easily define, in a single object, the network quality, conditions and routing between each node in the network.
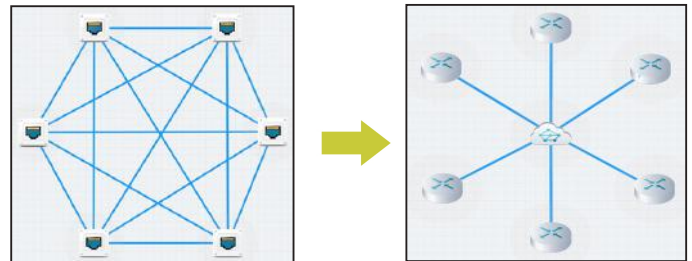
Geolocation Network Latency Calculator

Imagine you need to emulate a link from New York to London but you're unsure of what latency to use. NE-ONE comes with a catalogue of over 42,000 locations, so simply choose the required start and end point locations and NE-ONE will calculate and insert the base latency for you.

User-Defined Protocol Definitions

Add your own custom-built private, prototype or even secret protocols without any involvement from us, which is particularly useful for organizations working in sensitive or secure environments.

RAPID ANALYSIS

One of the most important elements of the NE-ONE Enterprise is its range of analysis features providing you with a clear view of application performance over the test network, saving you valuable time.

Graphs & Statistics

Analyze the test network in real-time to identify and resolve potential application performance issues to ensure service level compliance before deployment. Easily see what is happening to packet flows at any point in the test network and get easy and fast visibility into your application's performance using built-in graphs including an export data feature for offline analysis in other tools.
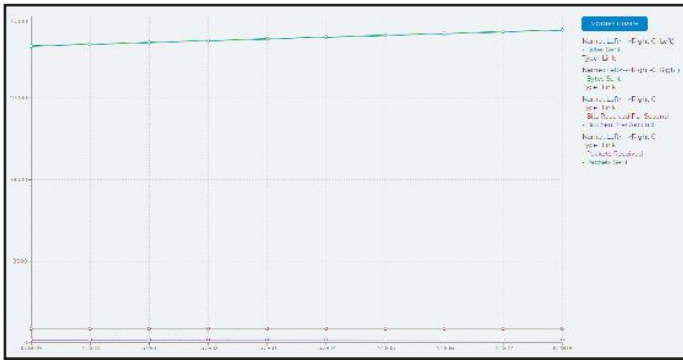
Packet Capture

Full packet capture, in PCAP format, at any point in the test network provides pervasive application visibility, analysis and troubleshooting for use with other tools, including Wireshark®, enabling rapid debug of application performance issues.

Reports

NE-ONE's built-in expert knowledge provides comprehensive understanding of the end-to-end performance of applications and how and who they interact with over the network. Its powerful, intelligent and interactive reports empower you to know if an application is Network Ready, validates planned changes and accelerates troubleshooting performance problems in production applications.

Configuration Report: Lists all settings including nodes, links, routing, bandwidth and impairments about the configuration of a Test Network.

Test Report: Provides all of the information from the Configuration Report together with graphs that show how much data was transferred across each Link and Node.

Applications Reports: Using expert knowledge the Applications Report automatically predicts applications that are sensitive to latency and bandwidth. Each application is given a Network Ready score indicating if the application is expected to work, is borderline or is most likely to experience issues.

Application Performance Report: Predicts how the application will perform over a range of latencies and provides application transactional metrics collected during the test.

POWERFUL INTEGRATION*

NE-ONE Enterprise provides a rich multi-layered programmable architecture, allowing control of everything from individual packets to the automation of the entire Software Defined Test Network. Power users can choose from a number of ways to connect external tools or applications that allow the creation of custom applications or the automation of repetitive tasks.

Advanced CLI/API

A CLI for scripting routine tasks and integration with other products you can orchestrate and automate changes in the network conditions dynamically.

RESTful API

NE-ONE's RESTful APIs are the foundation that provides a modern and scalable way for our customers and partners to integrate more quickly and with less complexity. Every GUI operation has a RESTful API equivalent that enables easy integration therefore reducing complexity and development time.
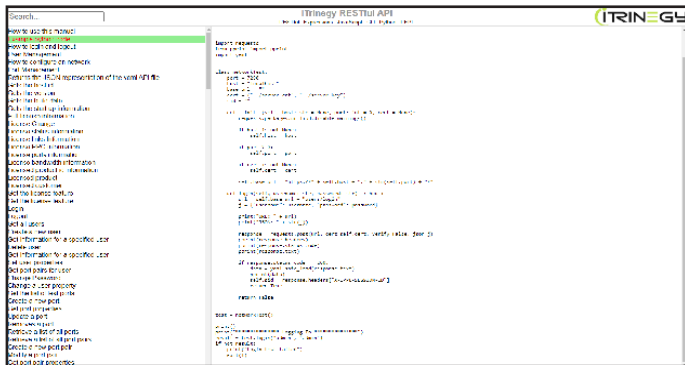
Embedded Javascript Engine

The embedded Javascript Engine allows you to create powerful, high precision models or simulations or networks that change dynamically, either individually or together.

- Timer controlled changes to the Software Defined Test Network
- Handling of user generated events to change the state of the Software Defined Test Network
- Rapid changes to parameters
- Modeling specific and complex network simulations
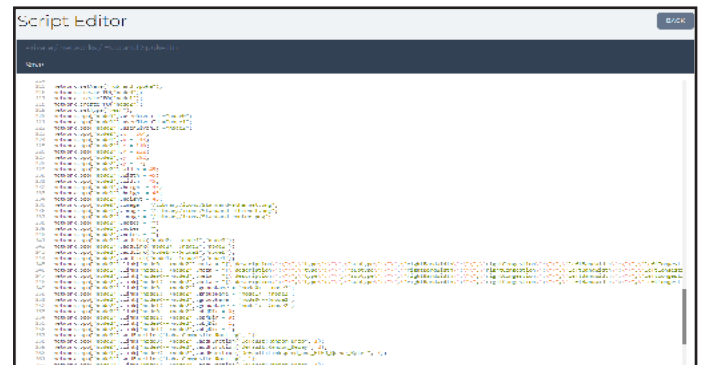
Packet Engine Programming Language (PEPL)

At the lowest layer we have the Packet Engine Programming Language (PEPL) allowing programmatic manipulation of packets, analysis of all traffic flows, actions, including new impairment and routing functions, on a per packet basis. You can create your own Soft Ports, impairments, classification and routing functions using the same tools we use.

* To use any of the above features NE-ONE customers must purchase the Integration feature pack.

MORE REASONS TO CHOOSE AN NE-ONE ENTERPRISE NETWORK EMULATOR

Training

The NE-ONE team offers both instructor-led and self-paced on-demand technical training built on practical learning objectives that are relevant to the installation, configuration and operation of the NE-ONE Enterprise. Develop your team's expertise and increase productivity through either online or on-site standard and bespoke courses.

Professional Services

The NE-ONE support team Professional Services offers world-class support, training, and consulting to help you get the most from your NE-ONE investment. Whether it's providing fast answers to questions, advising on best practice, assisting with implementation or training internal teams, the NE-ONE Professional Services can help.

Protecting Your Investment

The speed at which technology changes is almost impossible to predict but NE-ONE customers can be assured that their investment is protected by our continuous development program and the release of significant product upgrades each year.

Since 2006 we have concentrated our focus on the design, production, and creation of Network Emulation technology, and this is a focus that we proudly maintain to this day. As a result, you can be confident that your investment in our products is for the long-term.

To learn more about the NE-ONE Enterprise Edition please visit ne-one.com to find these and other resources:

NE-ONE Family Datasheets:
- NE-ONE Family Brochure
- NE-ONE Family Virtual Appliance Brochure
- NE-ONE Family Impairments & Transitions Data Sheet
- NE-ONE Family Impairments & Transitions Guide

NE-ONE Enterprise Datasheets:
- NE-ONE Enterprise Datasheet
- NE-ONE Enterprise Hardware Appliance Technical Specifications
- NE-ONE Enterprise Network Objects Explained

Case Studies:
- Cisco - SD-WAN Proof of Concept testing at Testing Center of Excellence

- Enaire - Analogue to IP-based Comms Migration

- Helyx - Virtual Test Lab in the Cloud

- NATS - Move to Voice over Internet Protocol (VoIP) systems

- Sectra - Testing of encrypted telephony devices over networks

- UK MOD - Testing of apps/devices before field trials or deployments

Please contact your NE-ONE representative for further information.

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