INE NETWORK EMULATOR RANGE

iNE

WHAT'S INSIDE

ACCELERATE APPLICATION READINESS WITH A CONTROLLABLE AND REPEATABLE TEST NETWORK.

The iTrinegy INE Enterprise/Ultra Hardware and Virtual Appliances (NFV) range continues to lead the market with accurate, high performance, scalable Network Emulation that brings the behavior of private and public networks into a controlled and repeatable Software-Defined Virtual Test Networks.

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 deploying a new mobile app, then including real-world network conditions in your application performance testing is imperative for reliable and successful deployments.
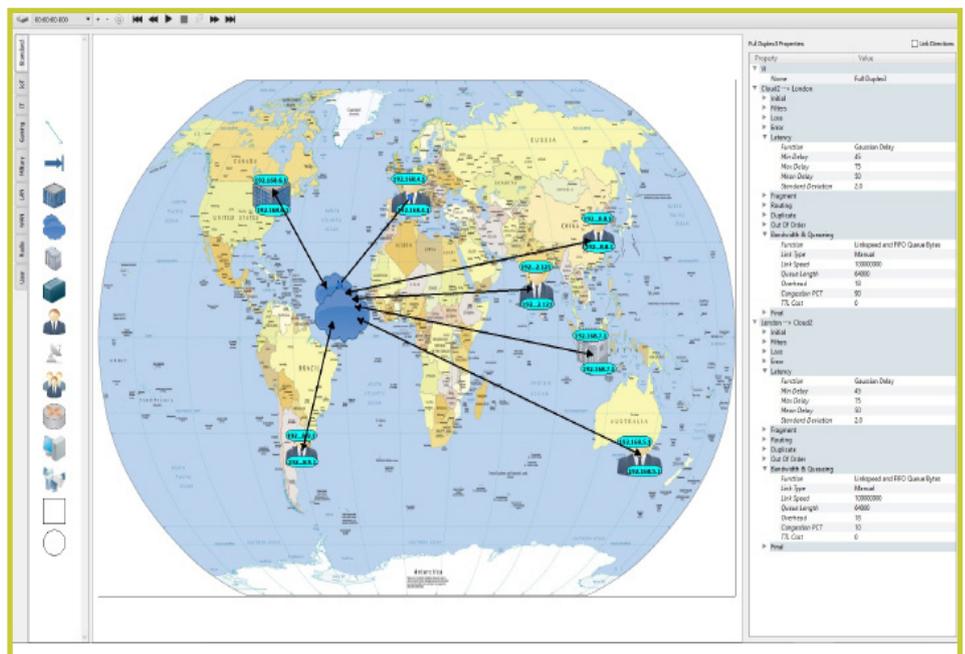
The INE's Cloud object, with its built-in routing and mesh features, enables even the most complex networks to be quickly and easily drawn out

INE Enterprise/Ultra Appliances (referred to simply as INE from hereon) can mimic LAN, WAN, Cloud, Satellite, Mobile, DSL, WiFi and other network types in point-to-point, hub-and-spoke, partially and fully meshed topologies or any combination of these. INE's Virtual Routers and circuits allow you to easily recreate real-world configurations including IP addresses, routing tables, other network traffic, congestion, latency and link quality thereby greatly enhancing the realism of the test environment.

The INE range offers 1Gbps, 10Gbps and 40Gbps[1] physical emulation ports and up to 253 virtual sub-ports depending on the model selected. Please use the INE Technical Specification Sheet link on page 5 for more information.

BUSINESS CHALLENGE

Networks have been rapidly evolving in recent years to address the changing needs of application workloads and user expectations. Corporate users and consumers expect applications to work from any location, at any time of day and to run on any device. Modern applications must not only work effectively across a corporate LAN but across the WAN too which may include public networks, such as the Internet, Cloud, Mobile or WiFi. Additionally, shifts in application development and the adoption of Agile and DevOps mean the pressure to release application updates quickly and deliver the highest level of reliability and performance, while also managing the budget, in a complex and evolving hybrid network has never been so high.

With these shifts, an application's ability to handle frequently adverse (real world) network conditions is extremely important to ensure a good user experience, regardless of the network quality. A crucial testing challenge for IT is how to mimic the complex real-world networks so that an application's behavior can be validated under degraded, disrupted or disadvantaged conditions in an accurate, controlled and repeatable environment.

iTrinegy recognized that the next generation of Network Emulator must provide IT with a solution that enables them to create a working facsimile of the operational network, however complex, so that every possible real-world network scenario can be played out. To meet the changing testing needs, iTrinegy developed the INE family of Network Emulators. Additionally, these next generation emulators are able to live in a DevOps infrastructure as a component of the corporate network, not just the lab.

KEY BENEFITS

iTrinegy's award-winning Network Emulators create virtual test networks to de-risk application deployments and migrations as they enable you to recreate every perceivable network topology and scenario in which to conduct realistic pre-deployment testing. By using iTrinegy INE Network Emulators prior to actual deployment, you can ensure that your applications will work and perform in the target network without the cost and expense of retrospective re-designing, re-coding and fixes.

Easily Deploy with Superior Realism
Rapidly map out the production environment including virtual routers, links, end-points, traffic and network link characteristics to accurately emulate user experiences. This provides greater realism and so enhanced confidence of tested applications.

Automation
Save time by integrating your network scenarios with functional and performance test tools and/or your own scripts instead of making manual changes.

Operational Scaling
INE's multi-user design, virtual ports and scenario sharing capabilities protects 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.

Customize with Programmable Network
Extend the capabilities of the Network Emulator by developing your own impairments or packet handling functions.

KEY BENEFITS (CONT.)

Analysis and Optimization
Analyze test results in real-time to identify and resolve potential performance issues to ensure service level compliance before deployment. Inspect application behavior in detail enabling rapid debugging of application performance issues to ensure a positive user experience.

Continuous Test Network & DevOps
Deploy on the edge of the production network enabling users to test application performance from their usual location but as if they were physically at another location.

Enterprise Management
Optionally integrate the INE into Enterprise LDAP single-sign for authenticating users against their existing login credentials. Add the INE into standard security and monitoring systems using built-in SNMP support.
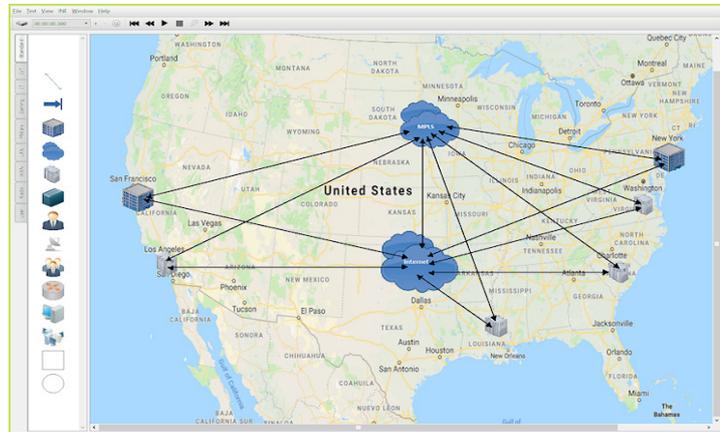
Using the INE Drawing Interface it is easy to create a wide variety of network topologies including SD-WAN environments

KEY FEATURES

Superior Real-world Impairments
INE provides you with access to more than 50 network impairments that provide accurate, realistic, repeatable and controllable network conditions. Each of these are further customizable to enhance the realism of your test setup so that you have complete control of bandwidth, congestion, latency, packet loss, errors, fragmentation, reordering, duplication and more!

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

Sophisticated Routing
Bridge and/or route traffic via the emulator enabling you to mimic the complexity of your real world network.

Integration
Easily integrate with the most complex network environments and can be used inline with your test equipment or configured to route and impair traffic in VLAN configurations and multi-IP configurations such as router-on-a-stick. At the same time other traffic, not under test, can flow through the emulator unimpaired.

KEY FEATURES (CONT.)

Scenarios
Create time-based scenarios by automatically changing the network conditions to reflect the real world network or test requirements.

Save and Share Network Scenarios
Create a central scenario library on the INE allowing users to efficiently share scenarios. Alternatively, users can save onto their local file system or use network shares.

Multi-User
Several users or teams can share a single INE Appliance and run independent emulations in parallel.

Every Port to Every Port Connectivity
"Route" traffic from port-to-port or port-to-multi-port, including both physical and virtual ports, without any limitations on connectivity. This includes "routing" in bridged networks.

Virtual Ports
Create up to 253 new virtual ports as subdivisions of physical ports. Traffic for virtual ports can be classified by VLAN, IP Address (V4 and V6), IP Port or packet data. Removes the need to purchase expensive multi-port appliances that cannot scale-up.

Cloud
INE's built-in Cloud feature lets you easily create, in a single object, complex network topologies including star-coupled and fully meshed setups. Routing definitions between all end-points and link characteristics are easily setup and managed using the Cloud Object table without the need to draw out each link definition.

Security
Centrally add users with associated permissions to control access to the emulator's ports, virtual ports and resources.

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

Packet Classification, Filtering & Routing
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.

Congestion & Traffic Generation
Easily create and vary network congestion to make a link appear busy without using expensive traffic generators. Generate both internal and external traffic to create congestion using real packet flows.

Cisco QoS Class of Service Handling & Traffic 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.

KEY FEATURES (CONT.)

CLI/API
Orchestrate and automate changes in the network conditions dynamically from external applications. Every GUI operation has an API and CLI equivalent.

Graphs
Easily see what is happening to packet flows in the test network. Get easy and fast visibility into your application's performance using over twenty 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 virtual test network provides pervasive application visibility, analysis and troubleshooting for use with other tools, including Wireshark®, enabling rapid debug of application performance issues.

Labs
Get access to new ideas from our engineers before functionality is frozen. Contribute your ideas.

Programmable Network
INE's Packet Engine Programming Language (PEPL) enables programmatic manipulation of packets and analysis of all traffic flows in your virtual test network. You can create your own virtual ports, impairments, classification and routing functions using the same tools we use.

Flexible Deployment
Deploy either our ready-to-use hardware or virtual appliance software (VNF) on VMware vSphere which provides easy integration with your existing environment while leveraging the scalability and cost benefits of virtualization.

Administration
Centralized user-friendly web portal for fast setup, easy configuration and efficient maintenance.

PLATFORMS

The INE Network Emulator range is available as either industry standard rack-mount hardware appliances or downloadable Virtual Appliances.

MORE REASONS TO CHOOSE AN INE NETWORK EMULATOR

Training
iTrinegy 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 INE. Develop your team's expertise and increase productivity through either online or on-site standard and bespoke courses.

Professional Services
iTrinegy's Professional Services offers world-class support, training, and consulting to help you get the most from your INE investment. Whether it's providing fast answers to questions, advising on best practice, assisting with implementation or training internal teams, iTrinegy's Professional Services can help. For more information about iTrinegy's Professional Services, contact your iTrinegy Representative.

Protecting Your Investment
The speed at which technology changes is almost impossible to predict but iTrinegy's customers can be assured that their investment is protected by our continuous development program and the release of at least two major product upgrades each year.

For more information about iTrinegy's Professional Services, contact your iTrinegy Representative.

MORE INFORMATION

To learn more about the INE Network Emulator range please visit www.itrinegy.com to find these and other resources:

Datasheets:
• INE Range Comparison Guide
• INE Flex Virtual Appliance Range
• INE Hardware Appliance Technical Specifications

Case Studies:
• Proof of Concept Testing for a Data Center Migration
• Application Performance Resolution
• Pre-Deployment Mobile Data Communications Testing & Problem Resolution
• Pre-Deployment Testing of MIssion-Critical Applications

[1] Available Q2 2019

www.itrinegy.com • T: (USA): +1 888 448 4366 • T: (UK): +44 (0)1799 252 200 • E: info@itrinegy.com