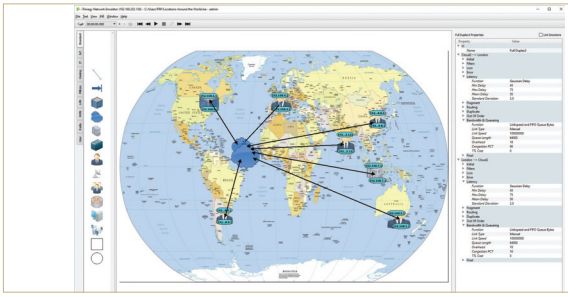
INE Network Emulator from iTrinegy



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With digital transformation driving the IT agenda, business critical software Applications are centre stage. Users don't consider network quality, but if an application is unavailable, runs slow, or is any way non-performant, they will complain. Add to this the influence of DevOps on application development and application provisioning cannot be left to chance.

Network topologies used by applications are numerous, hybrid, and their behaviour is innately unreliable and unpredictable. Applications should never be tested in production networks. Responding to the need to accurately emulate behaviour in complex enterprise and public networks, iTrinegy has developed the iTrinegy Network Emulator (INE).

INE is available either as a1U rackmount appliance or a virtual appliance. We used both from the same GUI, logged in as Admin (Superuser). In addition to the management port, the only other options deal with 1GB and 10GB emulation interfaces and the number of each required.

The GUI (MAC, LINUX, and Windows) opens with a familiar Visio-style drawing screen with a rich icon palette that can be used offline. The importance of the map cannot be underestimated. Each Icon is a unique emulation object replete with a repertoire of packet centric activities that become the emulation. Right-click and hover mouse actions enhance ease of use.

We created a 3-node network and easily determined icon parameters, connections and port mapping. Using Properties we set about manipulating traffic to emulate network conditions. Options include delay, bit error, routing, loss, jitter, congestion, latency and Link Speed (Bandwidth) control. They rely on native impairment algorithms (Functions) and most offer choices - a delay could be random, Gaussian or continuous, for example.

With our network defined, we added two endpoints and used CMD to ping addresses and prove network operation. It's fast and simple to change parameters by clicking on an element, perhaps increasing jitter and hitting Update. To understand more complex and changing conditions the Timer function allows parameters to repeat, loop, and randomise, which can really stretch application performance.

Complex networks - Meshed, star-coupled, chained-hop, MPLS and Point-to-Point - can really affect application performance. Understanding application behaviour, when for example, turnaround time is intermittently doubled, really helps to model marginal performance, design resilience and establish achievable SLAs.

Network designs, saved locally (INE SSD) or to the GUI endpoint are small. The INE testing generates data and its collection for analysis was next. From the GUI we could name and organise locally stored PCAP files, which we analysed using Wireshark to understand application behaviour, performance, reliability and availability across a wide range of diverse use cases. INE graphing displays real-time performance.

The complexity that INE handles is impressive, including running multiple emulations simultaneously in complete isolation. User numbers are unlimited and the number of objects license controlled. User Profiles determine rights. Designed to be used in native emulation, INE can also connect to a live network to expand scope and verify results.

The choice of emulation interface is as much about required data volumes as it is about INE's scalability, because the capacity of a physical port can be shared hierarchically to create a large number of Virtual Ports - ideal for IoT emulation.

The tasks that can be fulfilled using INE seem limitless and include application deployment testing, data centre consolidation, application development and testing, DevOps support, continuous testing, SD WAN and operational testing. The approach enabled by the extensive, scalable ability of INE, especially in a hybrid IT infrastructure, breaks down the wall between IT and the business, thereby enabling informed application risk management.

Organisations relying on application-based services for operational existence need the INE emulation capability. It's a journey, not a destination, and it should start sooner rather than later... NC

Product: iTrinegy Network Emulator (INE) Version 8
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