NTC (Noetic Tactical Cloud)

SOCOM Tactical Network Testbed (June 2013)
Camp Roberts, CA

The US Special Operations Command (SOCOM) conducts Tactical Network Testbed (TNT) experimentation events in cooperation with the Naval Postgraduate School (NPS) at Muscatatuck UTC, IN; at Camp Roberts, CA; and at Avon Park, FL. These cooperative TNT experiments are conducted with representatives from Government R&D organizations, academia, and private industry.

TNT experimentation events provide an opportunity for technology developers to interact with operational personnel to determine how their technology development efforts and ideas may support or enhance SOF capability needs. The environment facilitates a collaborative working relationship between Government, academia, and industry to promote the identification and assessment of emerging and mature technologies for the primary goal of accelerating the delivery of technology discoveries to the SOF warfighter.

TNT identifies potential technology solutions, impacts, limitations, and utility to meet SOF technical objectives and thrust areas. Materiel solutions should be at a Technology Readiness Level (TRL) of 3 or greater for the purpose of TNT. Experiments may be between a half day and five days in duration and be conducted in unimproved expeditionary-like conditions. The NTC was tested at Camp Roberts via the SOCOM TNT the week of June 4, 2013.

Quantitative/Qualitative Results:

The testing performed proved successful in illustrating the ability to establish complete datacenter services in a very short period of time, in less than optimal conditions. In addition to the quick deployment capability, the pre-integration of all components and software will save endless man-hours of onsite or ad hoc engineering and logistical planning. This capability allows for the rapid deployment of enterprise datacenter services with very low power requirement in an extremely small footprint.

Setup and Operations:

The initialization and start-up process was extremely fast without any noticeable issues. During our tests, we established a completely functional VDI environment providing a complete set of enterprise services along with the basic desktop environment. We repeatedly took the system to a power off condition and brought the system back up to a fully operational state. This model of NTC will support up to 500 VDI clients along with a multitude of enterprise services and virtualized server systems.

Power Utilization:

The NTC was successfully powered up using a standard 15A power source inside the TOC at Camp Roberts. No power issues and very little draw; approximately 1KW of electricity needed to initialize all systems. System power requirement peaked at 1074 watts during initial startup. The NTC is configured with redundant input power (A & B) and was successfully tested by alternately disconnecting A and B power connections while maintaining full functionality.

Transport Tolerance:

The NTC is enclosed in a ruggedized mobile case allowing for a **two-man lift.** Inside components arrived in good condition with no damage during transport. Transport and setup of equipment was very straight forward and all equipment in full operational state. The complete operation of unpacking and making all connections providing complete datacenter services **took less than 30 minutes.**

Austere Environment:

The NTC operated flawlessly at 100 degrees Fahrenheit. The system never overheated and sustained operations at over 4 million transactions per minute under extreme conditions and high heat. During these operations, the system never exceeded any thresholds or showed any signs of overheating. CPU core temperatures fluctuated with load, but cooled immediately when the processor load was removed. This final experiment completely surpassed any expectations and proved the viability of this system in an austere and harsh environment.