# *Analysis & Design Tools for Live Instrumentation Infrastructures & Processes*

**Information Briefing (For Reuse Capability) of Small Business Innovative Research (SBIR) Effort (OPNET Technologies)**

**Government Sponsor:**

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## MAIN ISSUES OF FOCUS

- "Lessons Learned' from T&E Range Digitization Project Efforts (Test Support Network (TSN) at WSMR and Range Digital Transmission System (RDTS) at Yuma Proving Ground)

- Increasing bandwidth requirements of customers
  - › Test Ranges (DT and OT Ranges – core effort)
  - › Training Sites (CTC's, MOUT, other training locations)
  - › Inter-Range Connectivity

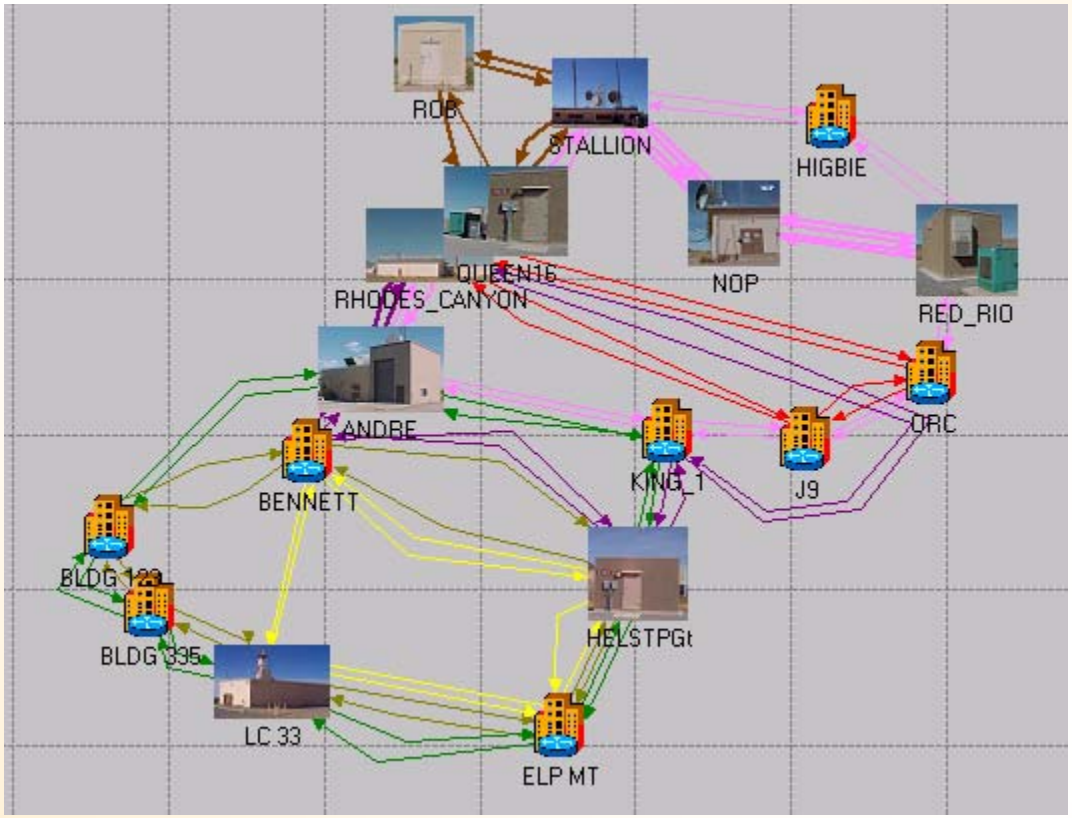
- Limited ability
  - › to model range data transport networks
  - › to simulate range traffic loading on networks

- Utilizes J6-endorsed network modeling / simulation tool

# SONET Rings (picture)

- A Snap Shot of The Network Topology of The Virtual Prototyping

- Each Ring has its own color



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## GOALS

- **Research, design, prototype modeling & simulation tool**
  - **› Support design & analysis of range instrumentation networks**
  - **› Evaluate rapidly evolving functional network concepts and hardware component designs (life cycle of 9 –12 months)**

- **Transition generic tool to Plug-n-Play "in-house" PEO/Range capability**
  - **› Affordable range telecommunications network modeling**
  - **› Capability for integrating PEO STRI products into multiple test & training range communication environments**

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## OBJECTIVES

**Reduce range networking risk via predictive telecommunications end-user modeling capability**

- **Provide process, protocols and applications for iterative design & development of**
  - **Data**
  - **Voice**
  - **Telemetry**
  - **Video transmission systems**

**at Any Test Center, Training Range, MOUT facility or Home Station**

## STATUS

- **Phase I: December 00 -- November 2001**
  - **Scope**
    - **Performed Data Analysis**
    - **Generated Model Abstracts**
    - **Established Baseline Models**
  - **100% SBIR Funded**
  - **Proposed and Selected for "Fast Track" to Phase II**

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## STATUS

**Phase II: November 2001 -- November 2003**

- Scope
  - Develop "generic" Virtual Prototype Model for
    - Planning
    - Resource Allocation
    - Network Performance/Traffic Flow
  - Validate Model against
    White Sands Missile Range - Test Support Network
- Funding = 80% SBIR funds; 20% T&E project funds

**Prototype (WSMR Planner)**

- Deployed to WSMR for V&V (29 May 03)

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## POTENTIAL NEW BUSINESS OPPORTUNITIES

- Refine/expand model to incorporate requirements of additional test & training ranges
  - › Army
  - › DoD (USN, USMC, USAF)
  - › Homeland Defense
  - › National Guard/USAR
- Integrate WSMR Planner model (or repopulated model) w/Range Network Management System capability
- Incorporate wireless networking technologies into model
- WSMR Planner model available for reuse (must populate w/new range data, Sep 03 – Oct 03 timeframe)
- OPNETWORK 2003 Conference Presentation (25 – 29 Aug)