FNT-09-02 Dynamic Tactical Communications Networks (DTCN) EC Open Tactical Router (OTR)

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Outline

- Overview
- Details
- Performer Product Integration
- OTR Runtime System View
- OTR Root Views
Overview

- Linux-based Tactical Router “Appliance”
  - Read-only execution environment
  - Packaged like COTS routers
  - Maintains some development flexibility
  - Supports controlled experiments
  - DTCN integration and evaluation environment

- “Appliance” because it’s just software
  - Discrete x86 hardware
  - Router module with x86 environment
  - Virtual machines
OTR Details

- Based upon Ubuntu 10.04 LTS
- Similar to “Live CD” environment
  - “Root” disk is read-only (normal operation)
  - Non-persistent writeable overlay
- Distinct persistent storage
  - Configuration
  - Logs
  - Other Data (?)
OTR Details, cont.

- Base environment is limited to run-time requirements
  - i.e., no development tools
  - As if OTR were deployed in production
- Add-on tools:
  - Development, instrumentation, etc. tools
- Performer contributions primarily to base env.
  - Expect collateral contribution to instrumentation
- NRL manages admissible prerequisite packages
  - Avoid long-term support issues, and mutually-exclusive performer contributions
  - Avoid dependency upon extra-Ubuntu packages
Performer Self- and Cross- Integration

OTR (Perf. A)
- Instr.
- Base

OTR (Perf. B)
- Instr.
- Base

OTR (NRL)
- Instr.
- Base

EMANE Eval.
“Root” (blue): writeable, non-persistent overlays above read-only file
“Boot” (red): read-only, physical device
“otr/persist” (green): writable, physical device
“otr/root-vers/image” (grey): read-only, read-only file
“otr/root-vers/boottime” (grey): read-only, non-persistent overlay
“otr/root-vers/current” (grey): read-only, bind mount of root
OTR Root Views

```
/otr/root-views/image
/otr/root-views/boottime
/otr/root-views/current
```

Read-only

Sparse writable overlay #1

Sparse writable overlay #2

“root-img” from /boot