Virtualization in a Mobile Environment

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Classic Standalone Mobile or Deployable Environment

- High Powered PC or Laptop
- 12 Core, 64+ GB Memory, 512GB+ HD
- 1-4 High Definition Monitors
- 1 Gb Network Card if Network is available
- Pre-Installed Software need for that specific stations function.
- Stores all Data Locally
Classic Network Enabled Mobile or Deployable Environment

- High Powered PC or Laptop
  - 12 Core, 64+ GB Memory, 512GB+ HD
  - 1-4 High Definition Monitors
  - 1 Gb Network Card if Network is available
  - Pre-Installed Software need for that specific stations function.
  - Stores all Data Locally and on Server

- High Powered PC or Server Class System
  - 12 Core, 64+ GB Memory, 4TB+ HD
  - 1-2 Monitors
  - 1 Gb Network Card if Network is available
  - Pre-Installed Software need for that specific stations function. (If multi use system)
  - Stores all Data Locally
Virtualized Mobile or Deployable Environment

RAPIDS-2 (Deployed)

Virtual Machine Hosts

File Storage

Zero Client (Any Function)

Zero Client (Any Function)

Zero Client (Any Function)
## Comparison Chart

<table>
<thead>
<tr>
<th></th>
<th>Classic W/O Network</th>
<th>Classic W/ Network</th>
<th>Virtual</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Network</strong></td>
<td></td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td><strong>High Powered PC</strong></td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td><strong>Zero Client Terminals</strong></td>
<td></td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td><strong>Dynamically Scalable</strong></td>
<td></td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td><strong>Flexible</strong></td>
<td></td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td><strong>Fault Tolerant</strong></td>
<td></td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td><strong>Centralized</strong></td>
<td></td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td><strong>Resources</strong></td>
<td>Local Only</td>
<td>Local Only</td>
<td>Shared</td>
</tr>
<tr>
<td><strong>Fixed Function Systems</strong></td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td><strong>Security</strong></td>
<td>Distributed</td>
<td>Distributed</td>
<td>Central</td>
</tr>
</tbody>
</table>
Example Solution Used Today
Success Stories

The Mobile Virtualized environment has:
- Shorted the setup time from 1-2 Day to 30-45 minutes
- Requires less personnel to perform Information System (IS) stand up
  - Unboxing, setup, teardown, Re-Boxing
- Takes up less space
- Dynamic scale ability based on operational need
- Enabled the users to take more “virtual” machines on deployment to cover mission requirements while still taking the same number of Zero Clients.
- Each user has their own virtual machine and can log into their own virtual machine from any Zero Client
- Reduced Cyber Security workload since patching, scanning, auditing is performed centrally
- Provided a great protection of the data since “ALL” data is stored within the central virtual environment
- Optimized resource utilization (CPU, Memory, Storage) across the solution
- Enabled Video Debrief and/or Analysis from any Zero Client system
RAPIDS

RAPIDS....

• Rapid
• Analysis
• Processing
• Independent
• Deployable
• System
RAPIDS 2 High Level Architecture

- 8Gb Optical Fabric Link
- SAS Cable
- 1Gb Ethernet Link
- 10Gb Ethernet Link
- 10Gb Ethernet Link
- 10Gb Ethernet Link
- 10Gb Ethernet Link
- 10Gb Ethernet Link
- 10Gb Ethernet Link
- 10Gb Ethernet Link
- 10Gb Ethernet Link
- 10Gb Ethernet Link
- 10Gb Ethernet Link
- 10Gb Ethernet Link
- 10Gb Ethernet Link
- 10Gb Ethernet Link
- 10Gb Ethernet Link
- 10Gb Ethernet Link
- 1Gb Ethernet Link
- 1Gb Ethernet Link
- 10/40Gb Trunk Link
**Priority Messages will be processed first**

**The only data left in CH10 is video**
Hardware Benefits of RAPIDS 2

Highly mobile, ruggedized solution & shock resistant storage

Fits in a 34 inch Weatherproof Rack for quick and easy deployment.

Contains no Vulnerable Disks. All Hard Drives are (SSD) Flash Drives

Easily Scalable Storage and Compute Hardware.
◦ Computer is Scalable to support hundreds of VM’s for many software tools and users
◦ Storage Scalable to multi Petabytes for Carrier Deployments or remote sites.
UPGRADED DEBRIEF Four monitors in One Display

**4K large screen experience:** The 43" display with high-performance monitor scalar offers exceptional clarity up to Ultra HD 4K.

**Multi-client capabilities:** Connect up to four independent clients to a single monitor with customized views, all without bezel breaks, so you can take total command of your tasks.

**Simplify multi-monitor setups:** Fewer cables
- RS232 connection offer easy manageability
- Single mount setup
- Single Rugged shipping case
User Benefits of RAPIDS 2

Government owned and controlled solution (GOTS).

No waiting for Data!!! Data Downloaded from all Dart and QRIP memory modules at 100% maximum download of 100MB sec.

Deployment Data quick access for review and comparison.

New features quickly implemented to meet mission requirements.

Comprehensive IA support from the RAPIDS Team.

Cleared & Deployable Team Members to support end-users.

Local onsite support at Nellis and Edwards.

Flexible solution that can be modified to best meet the mission requirements. The flexibility is accomplished though the use of virtualization.