



412th Test Wing



War-Winning Capabilities ... On Time, On Cost



U.S. AIR FORCE

Real-Time for the Future

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Thomas Kegel

412 RANS

DSN: 527-2166

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Integrity - Service - Excellence



Control Room Configuration



MCS Nodes - R630s



IADS CDS -
R730, R900



CSRA DxDecoms



Video Processor - T5400



IADS Displays -
T5810s,
T5500s,
T5400s,
T7500s, T490s



Bootserver -
R730, R2850




Chapter 10
Recorder



New Concept



Software Decom
IADS CDS
APS (MCS and
IADS)
Video Support
Soft RMOR
PC Sim
TECCS 5
Software Recording



Multi-Node Virtual Machine
Architecture
Processing RT Software Suite

Zero Client
Terminals



What we hope to make better...

Scope of Improvements



- **Reduce Vendor Specific (Discrete) Hardware**
- **Reduce Hardware Costs in Control Rooms**
- **Reduce Multiple Hardware Configurations in Control Rooms**

- **Reduce Turn Around Times**
- **Streamline Mission Management**
- **Reduce Hardware Administration**
- **Reduce Manpower**

- **Improve Cyber Security**



Desktop Station



Zero Client Technology -
No PCs, No Graphics Cards, No Operating System,
No Licenses in the Control Rooms



New Concept in Data Processing



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V Series Node

CPU: x2 2.0 -> 3.2

Cores: 16 -> 40

Mem: 1.5 TB

Flash: 46 TB

GPU: x2 Nvidia Tesla M60

Multi-Node Virtual Machine Architecture
Processing Multiple RT Software Suites



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Large Projects



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CPU: 3.0 GHz x8

Cores: 160

Mem: 6.0 TB

Flash: 184 TB

GPU: Tesla M60s x8

(~33% Overhead for Enterprise Protection)





Small Projects



Off-The-Shelf Technology

R730 Chassis

- 2 2.8 GHz 10 cores
- 2 Nvidia Tesla M60 GPU
- 16 GB RAM
- 6 1.2 TB SAS Drives
- 2 400 GB SSD Drives

Zero Client Terminals



Benefits



- **Efficient Resource Management**
 - Use what you need – Workstations, CPUs...
- **Quick Development for Operations**
 - Integrate Developer Environment
 - Integrate Testers in Real World Environment
- **Quick Turn Times for control rooms**
- **Expandable**
 - New Data Types/Streams
 - Integrate with CTF Data Centers
 - Could even log in Engineers at CTF for non-interference data monitoring
- **Upgradable**
 - Update Processors
 - Add User Chassis
 - Not Rooms
- **Insider Threat Compliance**
 - Elimination of Data Disk
 - Virtualization of Systems
 - Cybersecurity Practices
- **Ease of New requirement integration**



Real-Time for the Future

New Idea with Today's Capabilities