



Center Site Visit IT Infrastructure Integration Program (I³P)

Office of the Chief Information Officer

Dryden Flight Research Center

May 12, 2009

VISION: Integrated, secure, and efficient information technology and solutions that support NASA



Site Visit Objectives

Office of the Chief Information Officer

- What we are planning to do:
 - Share information about DFRC
 - Mission, Facilities & People
 - Current state of the IT infrastructure
 - Give you a feel of the size/scope of DFRC
- What will not be covered:
 - Explain further the five I³P acquisitions or associated strategy
 - Explain the content of the draft RFPs
 - Entertain questions on the acquisition strategy or draft RFPs



Comments and Questions

Office of the Chief Information Officer

- Submit comments/questions to <http://I3P.nasa.gov> [Q/A tab].
- How will these be dispositioned?
 - Comments Received by May 20:
 - Sender will receive acknowledgement e-mail.
 - Comments will not be posted online nor to any publicly accessible website but will be considered internally by the government when finalizing the RFP and no response will be provided.
 - Questions Received by May 20:
 - Sender will receive acknowledgement e-mail.
 - Questions, in whole, in part, or consolidated with similar questions, will be posted online along with the government's response. Individual and company identifiers will not be used in the online posting.



Agenda

Office of the Chief Information Officer

- Center Overview
David McBride
Center Director, Acting
- I3P Overview
Robert Binkley, CIO
- DFRC IT Infrastructure
 - Network Environment
Dennis daCruz
 - Data Center Environment
Greg Coggins
 - End User Environment
Brian Villalva
- Break (15 minutes)
- Center Tour (~1 Hour)
- Lunch/Travel to DAOF
- DAOF Tour (meet in Palmdale at DAOF Visitor Center @ 2 PM)

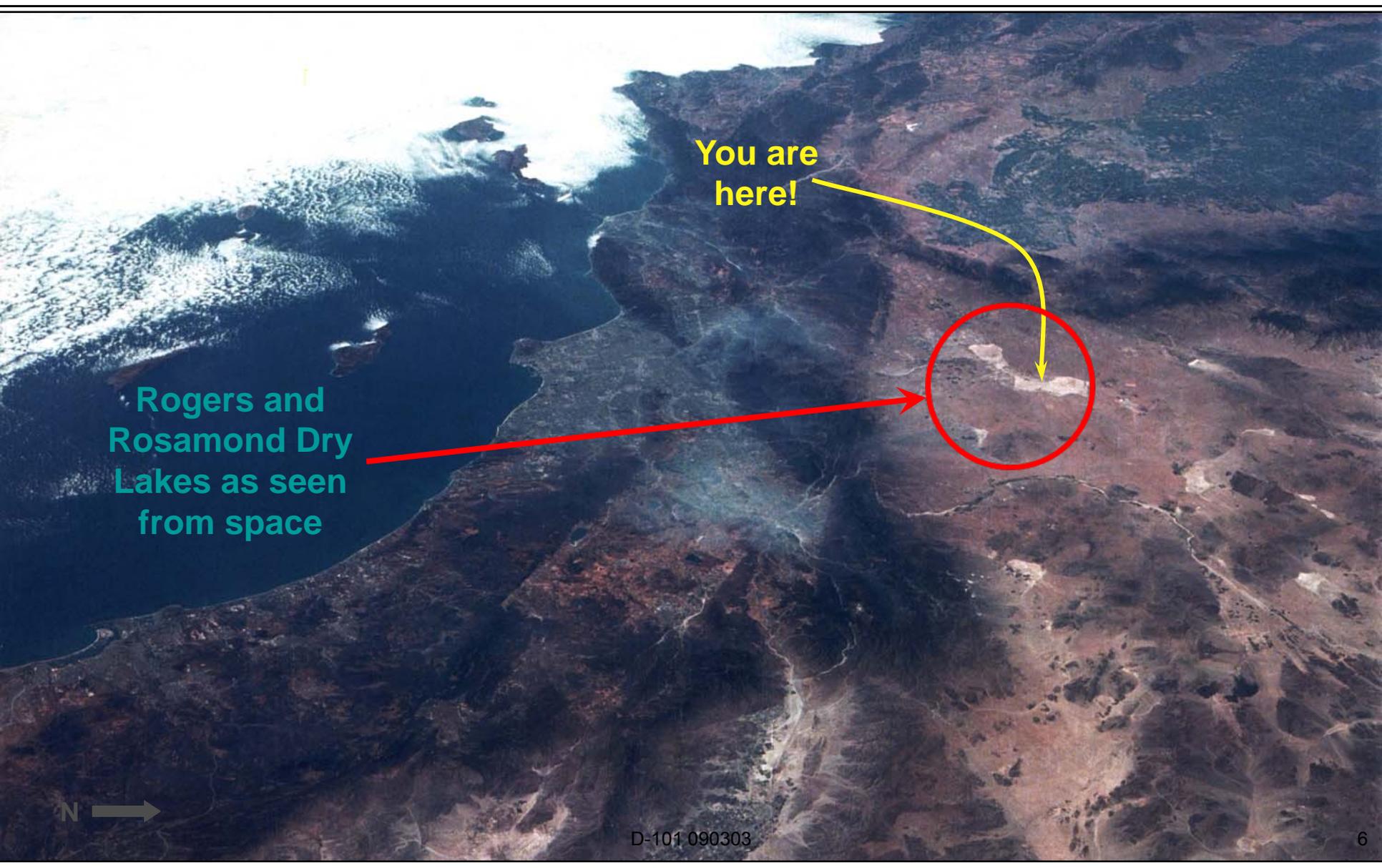


Dryden Flight Research Center

Center Overview

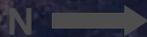
Dryden Flight Research Center

Edwards Air Force Base



You are here!

Rogers and Rosamond Dry Lakes as seen from space



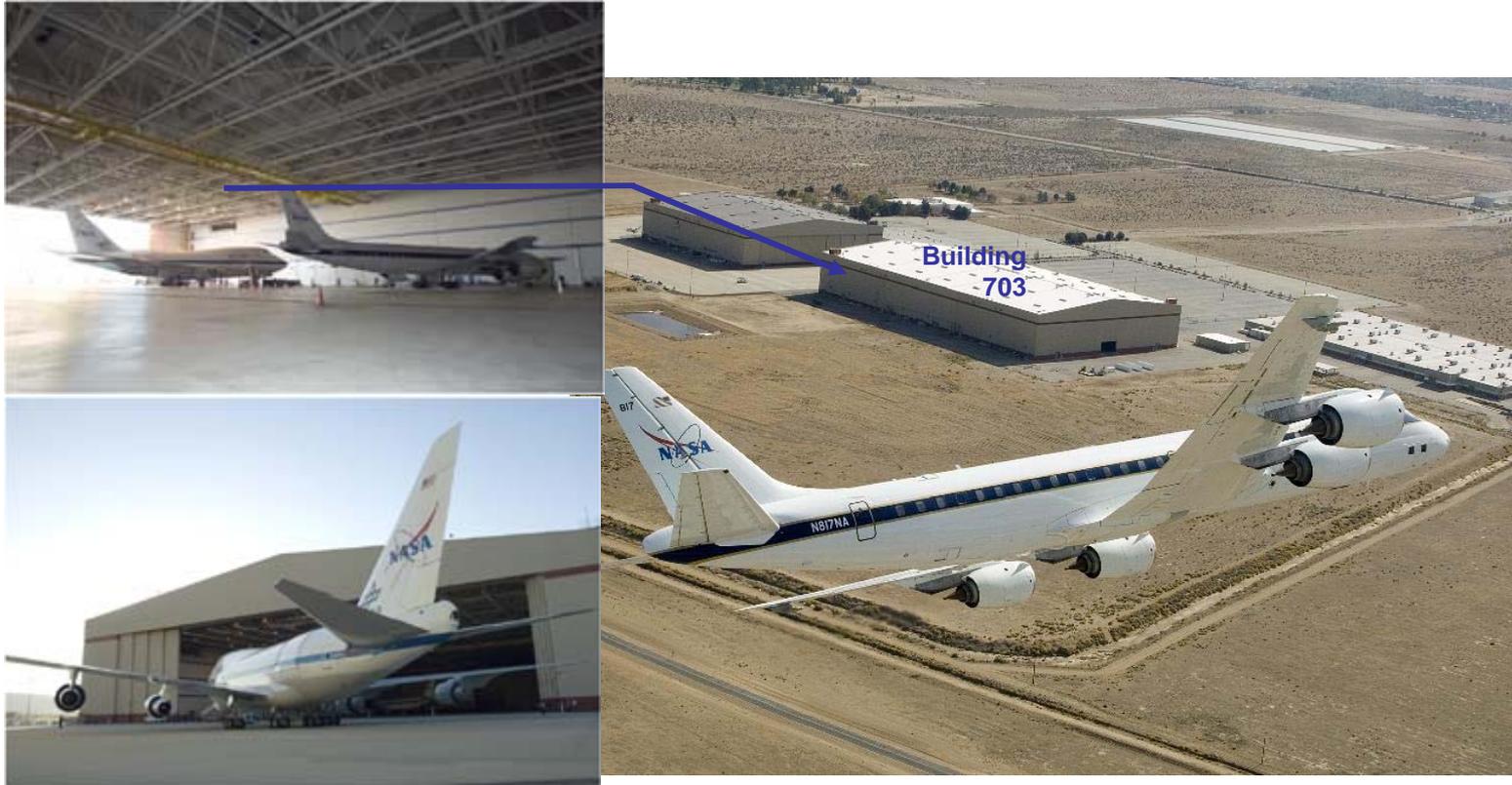
Dryden Flight Research Center

Edwards Air Force Base

- Remote Location
- Varied Topography
- 350 Testable Days Per Year
- Extensive Range Airspace
- 29,000 Ft Concrete Runways
- 68 Miles of Lakebed Runways
- 301,000 Acres
- Supersonic Corridor

Dryden Aircraft Operations Facility

Palmdale, CA



- Palmdale Site 9 Complex
 - Ready access to USAF Plant 42 runway and facilities
 - 40 miles from NASA Dryden Flight Research Center

Our Namesake



The NASA Dryden Flight Research Center was named after Dr. Hugh L. Dryden, the final Administrator of NACA and the first Deputy Administrator of NASA. The following is his explanation as to why there is a need for flight research,

“... to separate the real from the imagined and to make known the overlooked and the unexpected...”



To Fly What Others Only Imagine

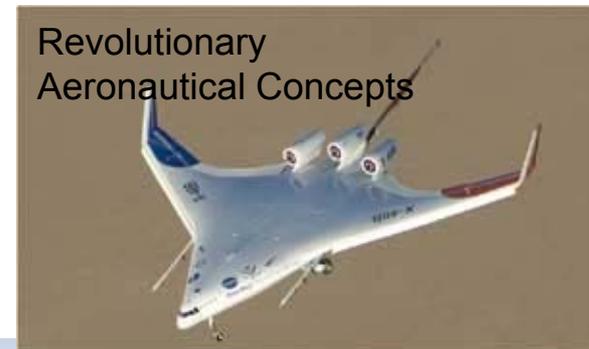


Advancing Technology and Science Through Flight

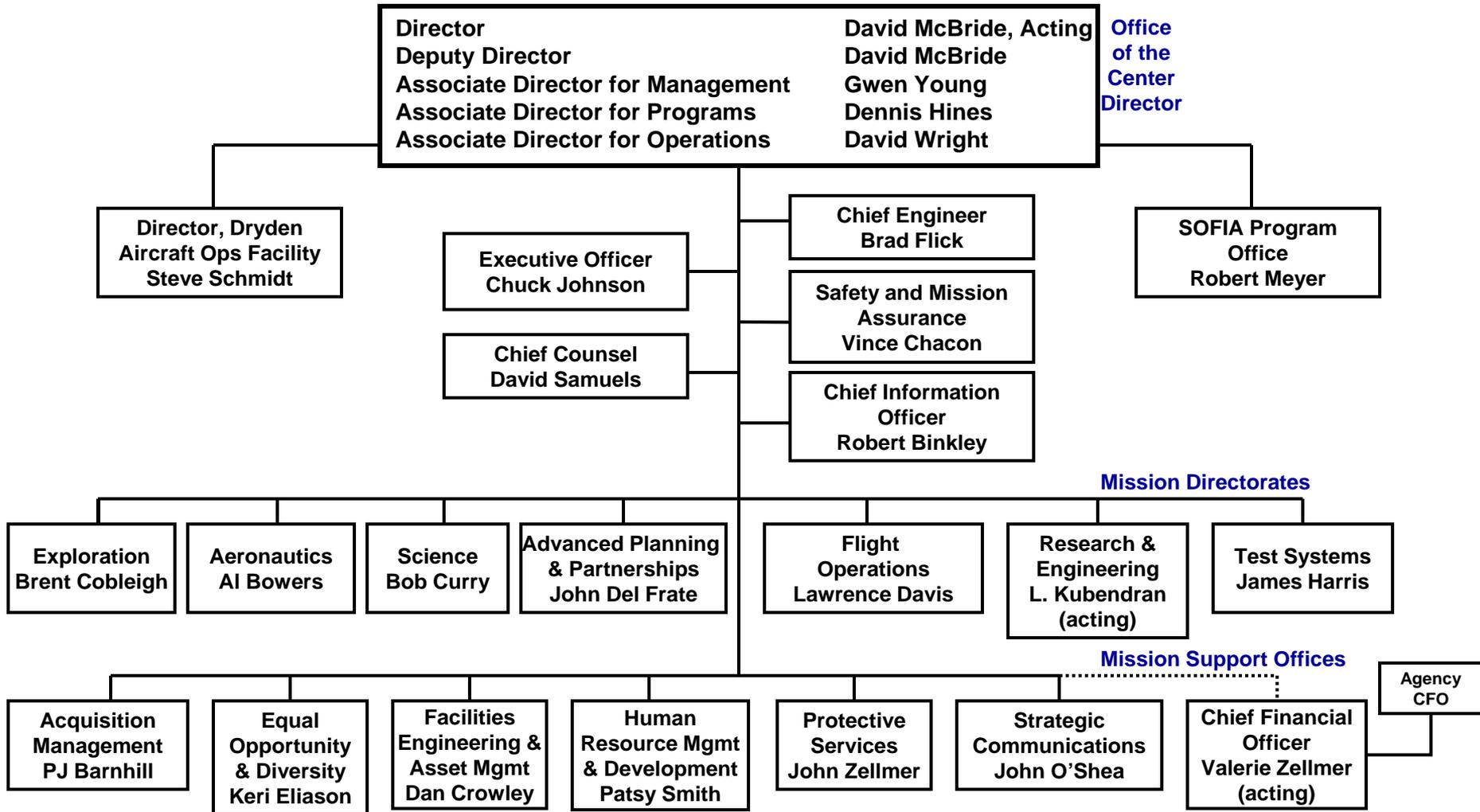


- Mission Elements
 - Perform flight research and technology integration to revolutionize aviation and pioneer aerospace technology
 - Validate space exploration concepts
 - Conduct airborne remote sensing and science observations
 - Support operations of the Space Shuttle and the ISS

... for NASA and the Nation



Dryden Flight Research Center



Summary of Dryden Capabilities



- Core Competencies

- Atmospheric Flight Research and Test
 - Flight Safety and Risk Management
 - Flight Project and Mission Management
 - Flight Research Technology
 - Flight Test Operations
 - Experimental Aircraft - piloted and unpiloted



FY09 Vital Statistics:

Civil Servant Staff

~ 560

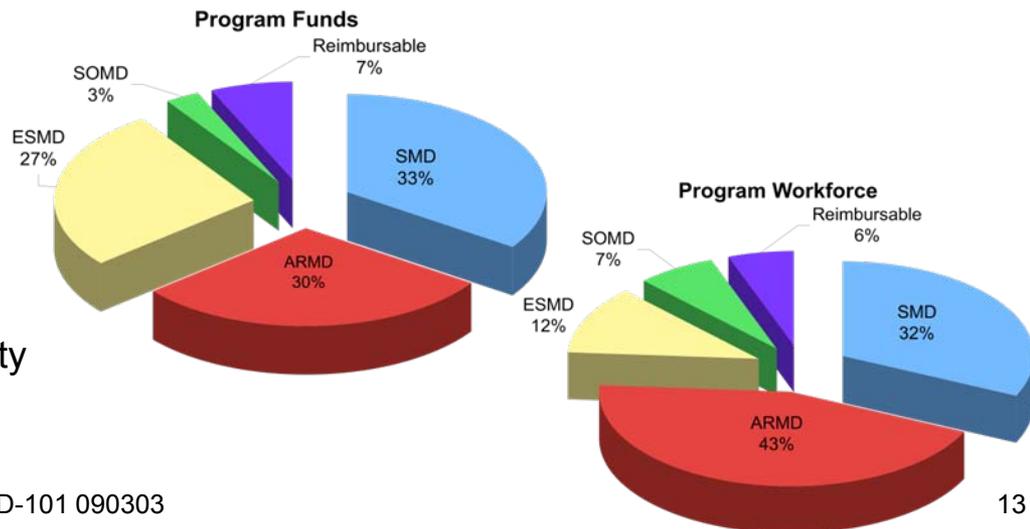
On-site Contractors

~ 650



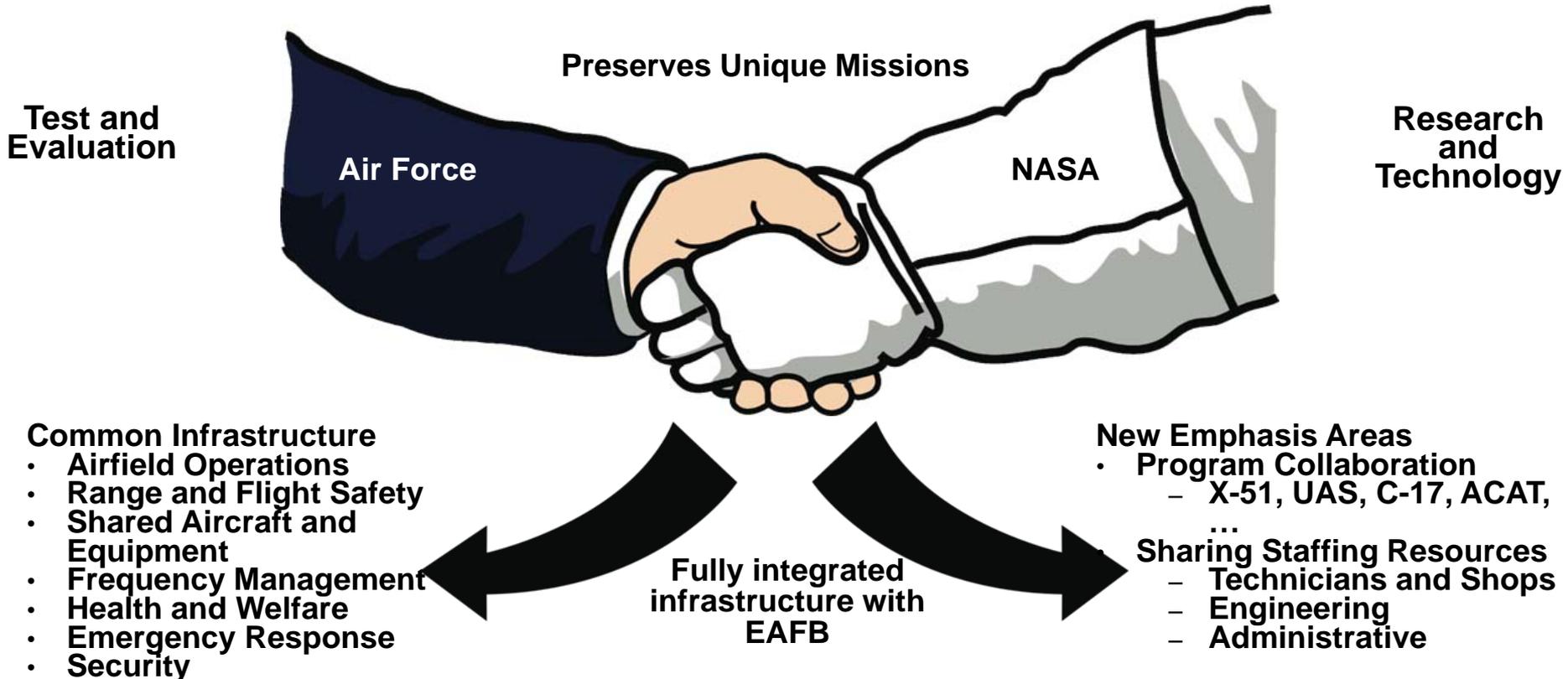
- Facility Capability

- Flight Operations & Engineering Staff
- Experimental and Testbed Aircraft
- Unmanned Aircraft Systems
 - Extensive experience in securing Certificates of Authorization (COA) for UAS flights
- Airborne Science Platforms
- Range and Aircraft Test Facilities
 - Western Aeronautical Test Range
 - Research Aircraft Integration Facility
 - Flight Loads Laboratory



DFRC/AFFTC/AFRL Alliance Activities

- DFRC/AFFTC/AFRL Alliance
 - Co-Chaired council meets quarterly
 - 8 integrated product teams
 - 33 active Memorandum of Agreements
 - Over \$86M in cost avoidance/savings to date



Strategic Partnerships



- DoD Partnerships:
 - USAF, AFFTC Alliance, AFRL,
 - USN, NAVAIR,
 - US Army, CERDEC
 - DARPA
- International
 - DLR Deutsches Zentrum für Luft- und Raumfahrt (German Aerospace Center), Cranfield (UK), ...
- Industry
 - Boeing, Lockheed Martin, Gulfstream, Northrop Grumman, AeroVironment, General Atomics, Scaled Composites, ...
- Academia
 - AERO Institute
 - Multiple university grants
- NASA Centers
 - ARC, GRC, GSFC, JPL, JSC, KSC, LaRC, MSFC
- Airborne Science
 - Departments of Agriculture, Energy, Homeland Security, and Interior
 - NOAA, EPA



Mission Activity



Exploration Systems

Orion Launch Abort Flight Test



- Orion crew exploration vehicle includes a launch abort system (LAS) that assures crew escape after failure
- Lead Flight Test Vehicle Development and Test
 - Systems Engineering & Integration
 - Safety and Quality Assurance
 - Development Flight Instrumentation
 - Abort Test Booster Procurement Lead
 - Crew Module Integration and Test
 - Launch Facilities & Ground Support
 - Equipment Lead Flight, Ground, & Range Operations

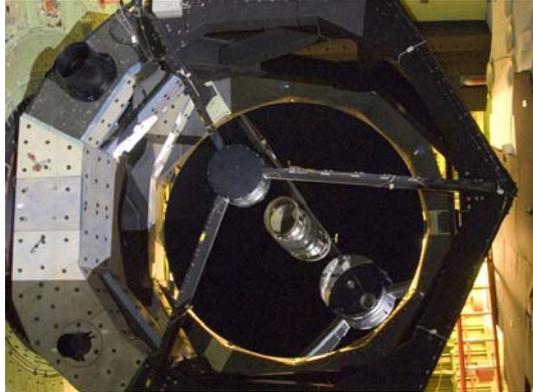


D-101 090303



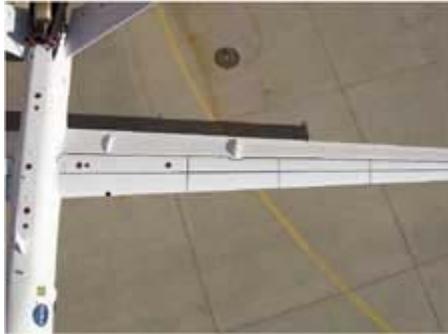
SOFIA

Stratospheric Observatory for Infrared Astronomy



- SOFIA will provide astronomers with a key infrared window to the Universe
 - Energetics of Luminous Galaxies
 - Origin of Stars and Planetary systems
 - Gas and Grain Chemistry of the Interstellar Medium
 - Structure of our Solar System
- Joint program by NASA and DLR Deutsches Zentrum für Luft- und Raumfahrt (German Aerospace Center)
- Science Mission Operations - Universities Space Research Association (USRA), Deutsches SOFIA Institut (DSI)
- Major aircraft modifications:
 - German-built 100-inch (2.5 meter) diameter far-infrared telescope weighing 20 tons mounted in the rear fuselage
 - Mission and support systems
 - Mission Control and Communications System (MCCS)
 - Education and Public Outreach work stations

Aeronautics Research



- Fundamental Aeronautics Program
 - Subsonic Fixed Wing
 - Supersonics
 - Hypersonics
- Aviation Safety Program
 - Integrated Resilient Aircraft Control
 - Integrated Vehicle Health Management
- Airspace Systems Program
 - UAS in the National Airspace System in support of JPDO
- Reimbursable/Partnerships (2011 SPG 1.4.4)
 - Technology Development
 - Systems Integration
 - Systems Validation

Airborne Science Program



- Aligned with the Science Mission Directorate's Airborne Science Program
 - Program Objectives
 - Satellite Calibration and Validation
 - New Sensor and Algorithm Development
 - Process Studies
 - Next Generation NASA Scientist and Engineer Development
- Platforms
 - DC-8
 - Heavy lift
 - Long Range
 - Shirt-sleeve environment
 - ER-2
 - Very High Altitude
 - Long Range
 - G-III UAVSAR
 - Synthetic Aperture Radar
 - Repeat pass interferometry
 - Global Hawk
 - Unmanned
 - Extreme range and endurance



NASA Space Operations



- Primary alternate landing site
- On-orbit communications support for International Space Station (ISS) and Shuttle Orbiter
- Telemetry support
- Shuttle Carrier Aircraft (SCA) maintenance and support

Testbed Aircraft



- Testbed aircraft augmenting Dryden's one-of-a-kind research aircraft are available to support a wide variety of research missions.
 - Dragon Lady (ER-2)
 - Eagle (F-15)
 - Global Hawk (RQ-4)
 - Gulfstream (G-III)
 - Hornet (F/A-18)
 - Ikhana (MQ-9)
 - King Air (B-200)
 - Mentor (T-34)
 - Talon (T-38)
- Testbeds provide platforms for sensor validation, aerodynamic, system, and propulsion research and test.



Education and Public Outreach



- NASA Robotics Education Project (REP)
- Math Odyssey
- Science, Technology, Engineering, and Mathematics Talent Expansion Program (STEP)
- Teacher Training
- NASA Explorer School (NES)
 - G.C. Cole Middle School, CA
 - Black Mountain Middle School, AZ
 - Edwards Middle School, CA
 - Flagstaff Middle School, AZ
 - Kennedy Elementary School, CA
 - Westwind Intermediate School, AZ
 - Arrowhead Elementary School, AZ
- Educator Resource Center
- NASA Aerospace Exploration Gallery
- NASA Aerospace Education, Research and Operations (AERO) Institute
 - Serves as innovator, facilitator and integrator for joint NASA, University and Industry projects
 - Leverages the assets of NASA, other government agencies, academia and industry
 - Creates strategic private/public partnerships







Agenda

Office of the Chief Information Officer

- Center Overview
 - David McBride
Center Director, Acting
- I3P Overview
 - Robert Binkley, CIO
- DFRC IT Infrastructure
 - Network Environment
 - Dennis daCruz
 - Data Center Environment
 - Greg Coggins
 - End User Environment
 - Brian Villalva
- Break (15 minutes)
- Center Tour (~1 Hour)
- Lunch/Travel to DAOF
- DAOF Tour (meet in Palmdale at DAOF Visitor Center @ 2 PM)



I³P Overview: Why I³P?

Office of the Chief Information Officer

- NASA's commitment to the strategy of Agency-wide IT services and Agency-wide procurement aligns with:
 - NASA's need for IT security, efficiency, and collaboration for mission support
 - Industry and business best practices
 - New Administration's priorities of effectiveness, efficiency, transparency, participation and collaboration
- What will success look like?
 - Reliable, efficient, secure, and well-managed IT infrastructure that customers rely on
 - Systems seamlessly deployed and used across Centers
 - Investing in the right IT solutions that provide the greatest benefit to the NASA mission





I³P Overview: Procurements

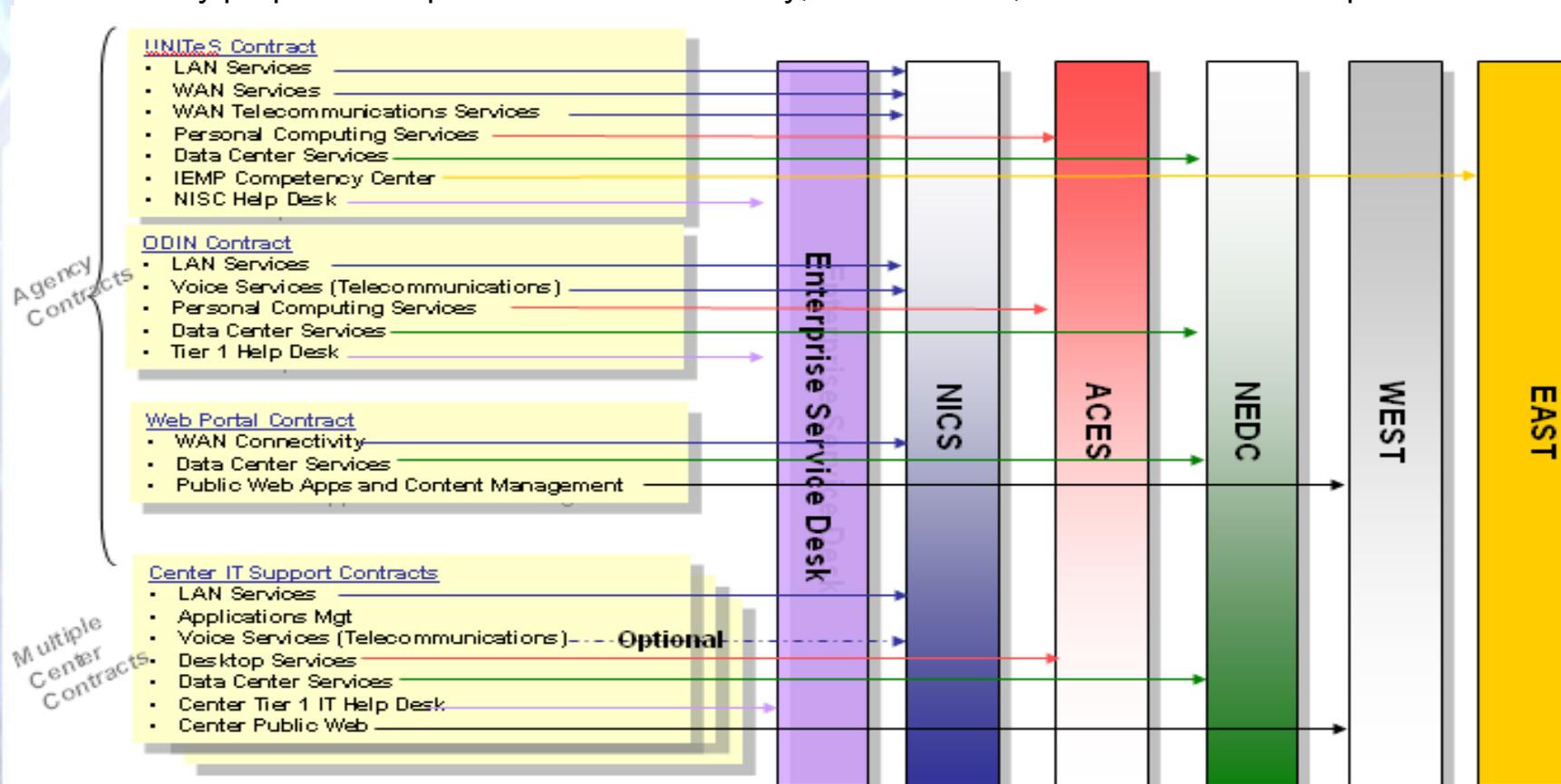
Office of the Chief Information Officer

- Procurements for Agency-wide IT services:
 - **NICS** will integrate networks and provide seamless operations across Centers;
 - **NEDC** will improve availability and access to applications and data;
 - **WEST** will improve the quality of web services for the same cost;
 - **ACES** will provide a consistent level of IT services across NASA; and
 - **EAST** will enable more efficient development and maintenance of Agency-wide applications, as well as improve the availability of business information for better informed decision making.
 - **Enterprise Service Desk** at NSSC will provide a single point of contact for IT incident and problem resolution and I³P service ordering



I³P Overview: Agency IT Infrastructure Supports Transformation

- Consolidates and requires Centers to use Agency contracts for core IT infrastructure services
- Allows Centers to use Center specific IT support contracts for Non-I³P services
- Uses a single Enterprise Service Desk and Enterprise Service Request System for reporting/tracking Incidents and for requesting I³P defined services
- Primary purpose is to provide better IT security, collaboration, efficiencies to accomplish NASA mission





I³P Overview: Procurement Schedule

Office of the Chief Information Officer

Updated April 22, 2009					
Milestones	NICS	ACES	NEDC	WEST	EAST
Draft RFP	4/20/09	4/20/09	4/20/09	4/20/09	5/11/09
Industry Days	Held in DC on 4/21 and 4/22				
Due Diligence	5/1 to 5/15 – Primary focus is on ACES, NEDC and NICS. NOTE: The EAST site visit will be on 5-20 at MSFC.				
RFP Release	6/15/2009	6/15/2009	6/15/2009	6/15/2009	6/15/2009
Proposals Due	7/30/2009	7/30/2009	7/30/2009	7/30/2009	7/30/2009
Contract Start	May 2010	June 2010	May 2010	June 2010	May 2010

Refer to <http://I3P.nasa.gov> for current schedule.



DFRC IT Governance Boards

- **Dryden IT Infrastructure Configuration Control Board**
 - Responsible for configuration management of all IT devices
 - Chaired by Deputy CIO/Operations Manager
- **DFRC IT Project Management Board**
 - Responsible for IT project operational reviews
 - Chaired by CIO
- **DFRC IT Operations Board**
 - Responsible for IT project technical reviews
 - Chaired by Deputy CIO/Operations Manager
- **DFRC IT Strategy & Investment Board**
 - Responsible for IT investment strategies & approvals
 - Co-chaired by Associate Directors for Operations & Projects
- **Flight Projects each have their management boards**



Agenda

Office of the Chief Information Officer

- Center Overview
 - David McBride
Center Director, Acting
- I3P Overview
 - Robert Binkley, CIO
- **DFRC IT Infrastructure**
 - Network Environment
 - Dennis daCruz
 - Data Center Environment
 - Greg Coggins
 - End User Environment
 - Brian Villalva
- Break (15 minutes)
- Center Tour (~1 Hour)
- Lunch/Travel to DAOF
- DAOF Tour (meet in Palmdale at DAOF Visitor Center @ 2 PM)



Network Environment

Office of the Chief Information Officer

- The DFRC network exists at three physical locations:
 - DFRC main campus
 - Approximately 80 buildings
 - ~280,000 ft² office space
 - ~225,000 ft² hangar space
 - ~170,000 ft² shop & lab space
 - ~100,000 ft² warehouse space
 - Dryden Aircraft Operations Facility
 - Single large (~425,000 ft²) building/hangar in Palmdale
 - Approximately 285 clients (~100 rotating personnel for science missions)
 - AERO Institute
 - Education/Training facility in Palmdale
 - Network supports approximately 10 full-time users and ~50 temporary users via wireless



Network Environment

DFRC Network Zones

Office of the Chief Information Officer

- Three primary network zones within the DFRC campus:
 - Intranet
 - Currently located at DFRC and DAOF campus
 - AERO Institute will be migrated to Intranet as part of CZAP
 - Multiple internal firewalls that define additional zones within the Intranet
 - Extranet
 - Located at all three physical locations
 - Public
 - Located only at DFRC and only in building 4838 (main data center)



Network Environment DFRC Current Network Zones

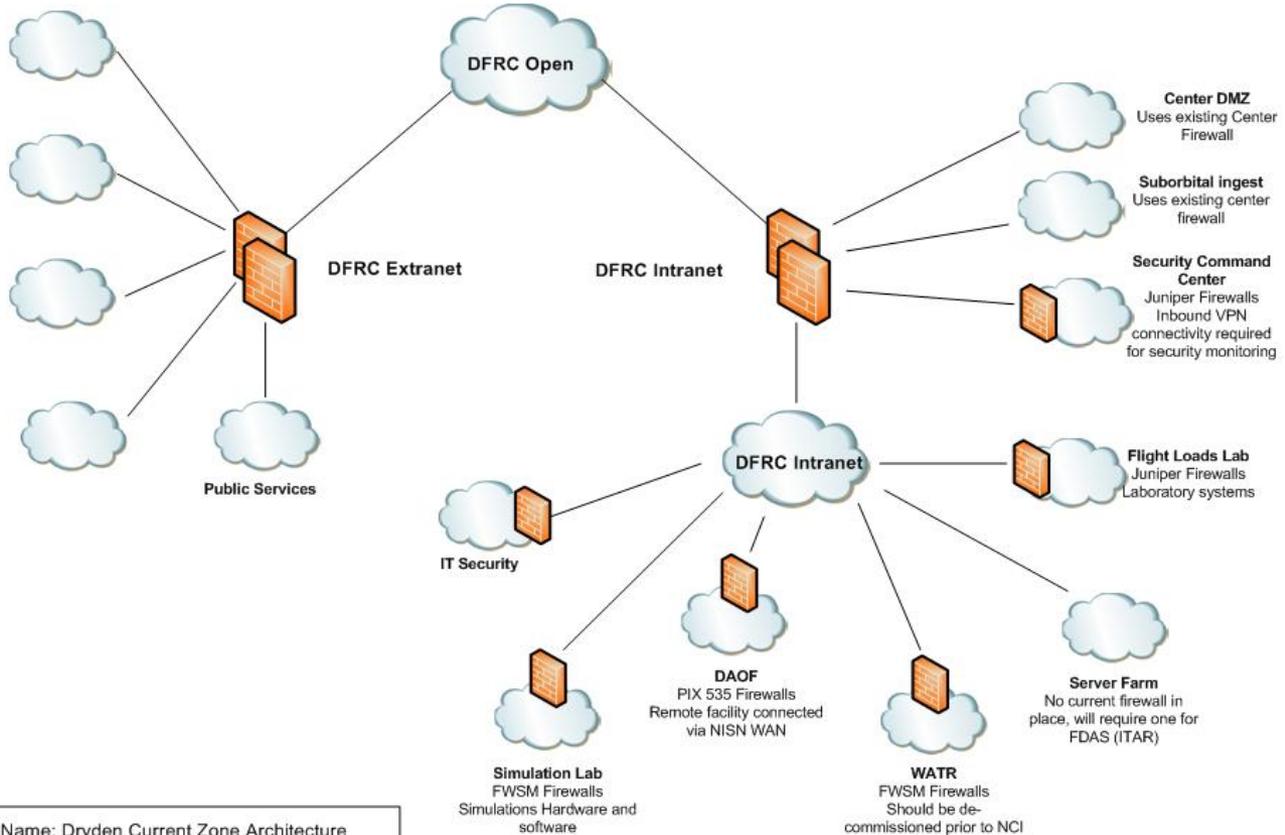
Office of the Chief Information Officer

Project Extranet VLANs
Projects include: Global Hawk, BWB, Ikana, Suborbital Delivery, USA, Learning Center, JARS, ACAT

Wireless VLANs:
Secure and Guest

Wireless and Network Mgmt

DAOF SRFN
SOFIA Sciences Network



Name: Dryden Current Zone Architecture
Drawing Number: DFRC-V-LAN-00xx-B
Owner: Dennis daCruz



Network Environment

DFRC Network Backbone

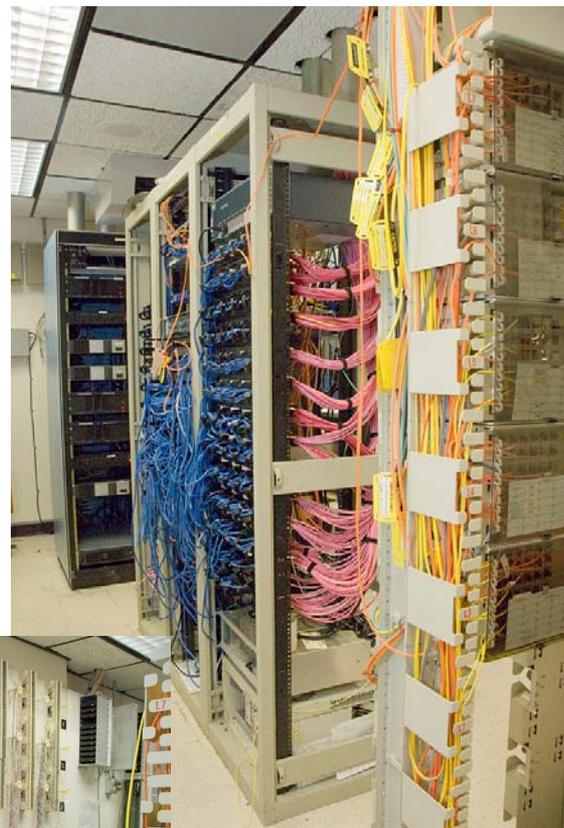
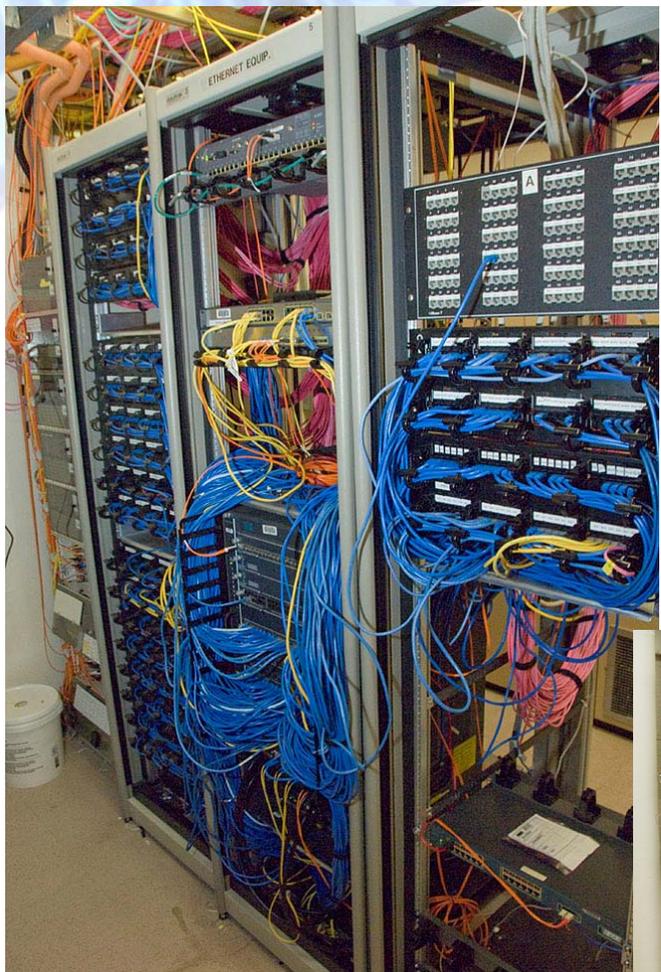
Office of the Chief Information Officer

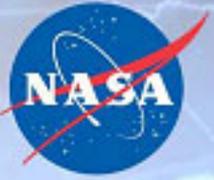
- DFRC Intranet Network Core
 - Network Core located in building 4838
 - Dual Cisco 6513 Devices
- DFRC Intranet Distribution Layer
 - 13 Network Distribution Points located throughout the DFRC campus
 - Buildings: 4800(5), 4840, 4838 (2), 4833, 4830, 4842, 4825, 4820
 - 10GE connectivity back to network core and also between major distribution points
 - Distribution Layer hardware consists primarily of Cisco 6500 (3,6,9,13 slot chassis) and Cisco 3750 switches for smaller locations



Network Environment Comm Rooms

Office of the Chief Information Officer





Network Environment

DAOF Network Backbone

Office of the Chief Information Officer

- DAOF Intranet Network Core
 - DAOF Network Core located in building 703 North Data Center
 - Currently consists of a single Cisco 6509
- DAOF Intranet Distribution Layer
 - 4 Distribution switches located throughout DAOF building
 - Two on North and two on south side of hangar
 - 1GE backbone between all distribution layer and core devices
 - Distribution layer hardware consists of Cisco 3750 switches



Network Environment

DFRC and DAOF Access Layer

Office of the Chief Information Officer

- DFRC Access Layer
 - 3750 switches (24 and 48 port switches)
 - Located within approximately 80 buildings within the campus
- DAOF Access Layer
 - 3750 switches (48 port)
 - Located within 10 communication rooms within the single DAOF building



Network Environment Dryden Extranet

Office of the Chief Information Officer

- Dryden Extranet
 - Dryden Extranet Core consists of dual 3750 1GE switches located in building 4838
 - Located within approximately 20 buildings within the Dryden campus and at both DAOF and the AeroInstitute
 - Extranet extended to DAOF and AeroInstitute through NISN supported Wide Area Network



Network Environment

DFRC Wide Area Network

Office of the Chief Information Officer

- DFRC WAN/Internet connections
 - Dual OC3 connections
 - Connections and hardware managed by NISN
- DAOF connectivity
 - Dual DS3 connection back to Dryden Intranet
 - Single DS3 connection back to Dryden Extranet (support Foreign National and Guest access requirements)
 - WAN connections/hardware currently managed by NISN
- AeroInstitute connectivity
 - Single DS3 connection to Dryden Extranet
 - Connection will be migrating to the Dryden Intranet as part of CZAP



Network Environment

DFRC IT Security Infrastructure

Office of the Chief Information Officer

- Perimeter firewalls
 - Center Firewall – Checkpoint (Cluster)
 - Extranet Firewall – Juniper Netscreen (Cluster)
 - Perimeter hardware will be modified during NCI/CZAP transition
- Dryden Intranet segmented using a series of firewalls to provide additional access control
 - All firewalls have hardware redundancy
 - A single Checkpoint Firewall (may be transitioned to Cisco if possible)
 - Three Cisco Firewalls
 - Two Juniper Firewalls



Network Environment Wireless Infrastructure

Office of the Chief Information Officer

- DFRC Wireless is centrally managed (no project managed wireless)
 - Management systems located within Dryden campus
 - Access Points located at DFRC, DAOF and AeroInstitute
 - Limited coverage due to spectrum issues (Channel 1 not allowed within DFRC campus)
 - Currently DFRC has implemented 49 Cisco Wireless Access Points
 - 33 DFRC Access Points, primarily in conference rooms
 - 16 DAOF Access Points, primarily limited to south side of hangar
 - Currently Guest service is provided, Secure/Corporate wireless under development (awaiting direction from Agency Network Architecture Board)



Network Environment Network Management

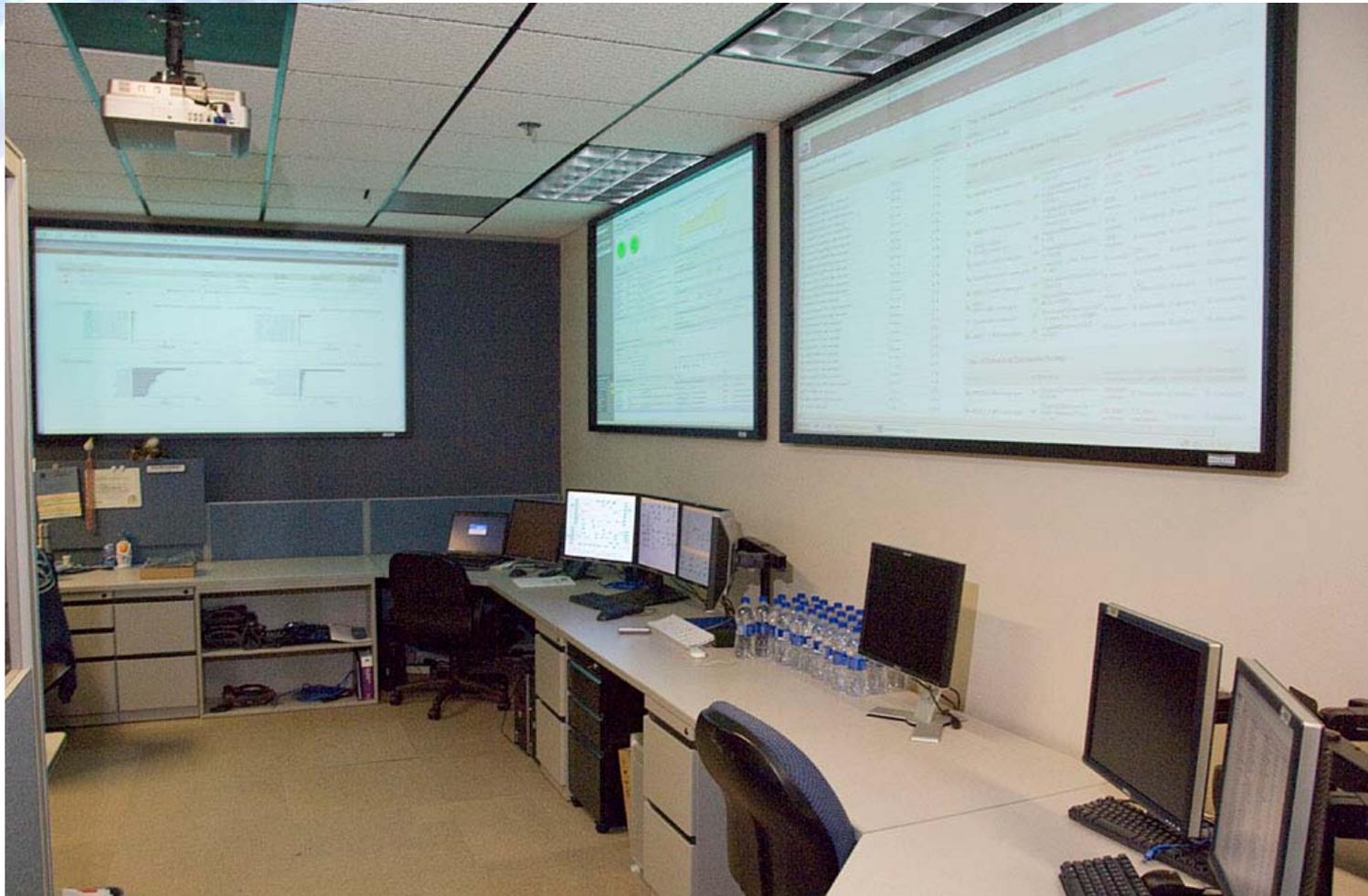
Office of the Chief Information Officer

- Network Management/Availability
 - Intermapper
 - Solarwinds
 - Network management system send notifications during system outage
 - Network administrators receive notifications through NASA email system
- Wireless Monitoring
 - AirMagnet
 - Centralized software/hardware
 - 23 remote sensors deployed between DAOF and DFRC
- APC UPS monitoring/management
- Performance Monitoring
 - NetQos



Network Environment Network Operations Center (NOC)

Office of the Chief Information Officer





Network Environment Remote Access

Office of the Chief Information Officer

- Cisco VPN Concentrator
 - Cisco ASA 5520
 - IPSEC client based VPN
 - 100 maximum simultaneous connections
 - 900 of system accounts
- Juniper Neoteris
 - SSL (web-browser) based Remote Access
 - Maximum number of seen users
 - 900 of system accounts



Network Environment IP Address Management

Office of the Chief Information Officer

- Three IPAM servers located within the DFRC Intranet
 - Two systems located within DFRC Data Center (building 4838)
 - Single system located within DAOF Data Center
 - Average of approximately twenty service requests monthly, related to IP address management



Network Environment Center Zoned Architecture

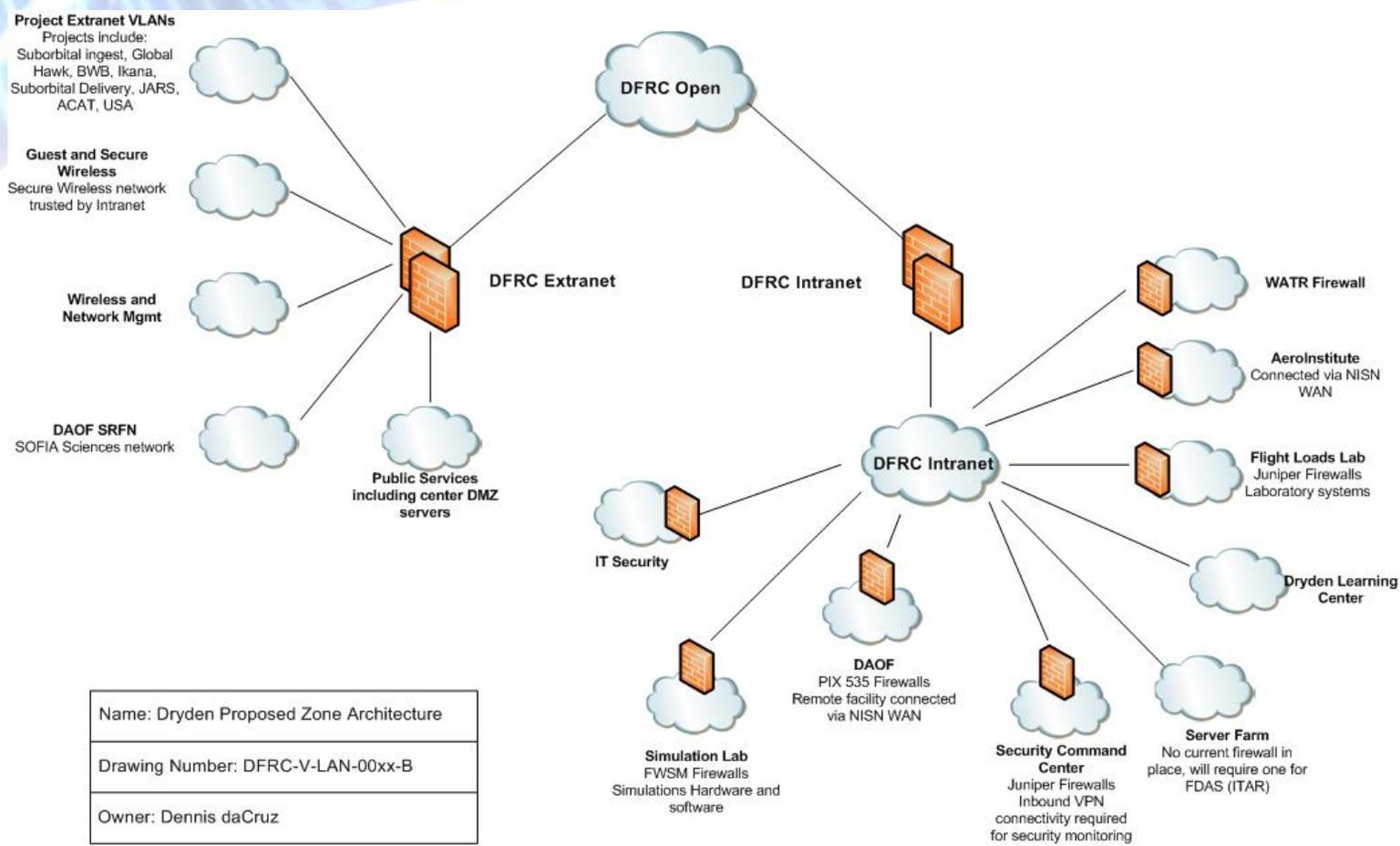
Office of the Chief Information Officer

- Will require the relocation of some systems and networks to different zones
- Should be completed prior to NICS contract
- Minimal additional hardware required



Network Environment CZAP Architecture

Office of the Chief Information Officer



Name: Dryden Proposed Zone Architecture
Drawing Number: DFRC-V-LAN-00xx-B
Owner: Dennis daCruz



Agenda

Office of the Chief Information Officer

- Center Overview
 - David McBride
Center Director, Acting
- I3P Overview
 - Robert Binkley, CIO
- **DFRC IT Infrastructure**
 - Network Environment
 - Dennis daCruz
 - Data Center Environment
 - Greg Coggins
 - End User Environment
 - Brian Villalva
- Break (15 minutes)
- Center Tour (~1 Hour)
- Lunch/Travel to DAOF
- DAOF Tour (meet in Palmdale at DAOF Visitor Center @ 2 PM)



Data Center Environment - Agenda

Office of the Chief Information Officer

- DFRC Data Center
- Data Center Equipment/Services
- DAOF Data Center



Data Center Environment Data Analysis Facility (DAF)

Office of the Chief Information Officer

Data Analysis Facility (DAF)

- Centralized Data Center for DFRC
- Main Computer room on 2nd floor
 - 2600 ft² raised floor space
 - 40 Racks of equipment
- 750,000 BTU's Total
- 4 PDU's supporting IT infrastructure
- 5 CRAC units supporting Air Cooling



Data Center Environment Power/UPS in DAF

Office of the Chief Information Officer

- **UPS MGE 7000 Series units**
 - Uptime of 15 minutes for each system (2 systems).
 - Supports up to 360 amps each.
 - Utilizes 126 amps or 35% load currently on 1 unit.
 - Each Unit is active every other month.
 - UPS's will transition over to the new CITC building in a phased migration path.



Data Center Environment DAF Computer Room

Office of the Chief Information Officer

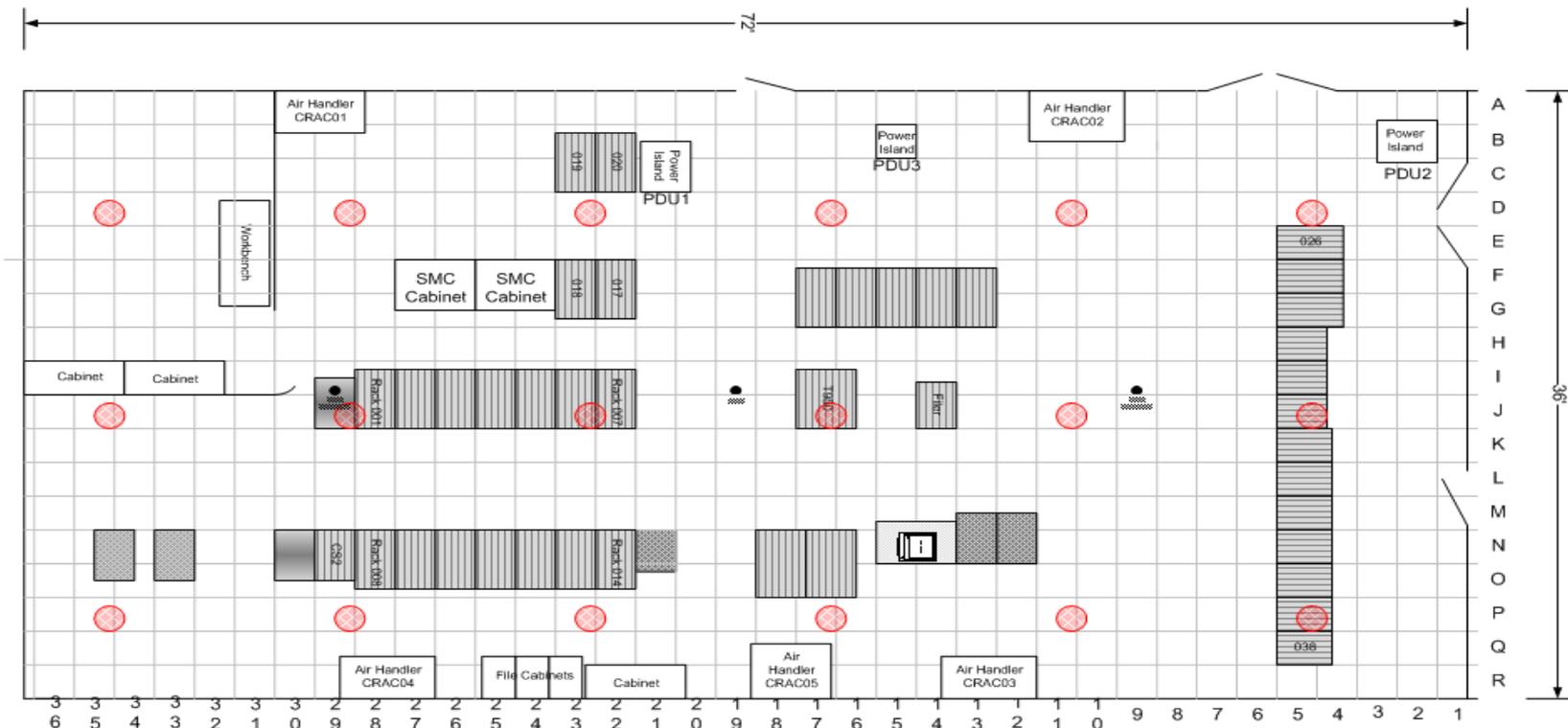
Room 201

2,600 sq feet
All raised floor
Rectangular shape

201202212A_FLOOR_LAYOUT_20090313.vsd
Last Edit 3/13/2009

1/8" = 1 foot

 = Sprinkler head with 18" clearance circle

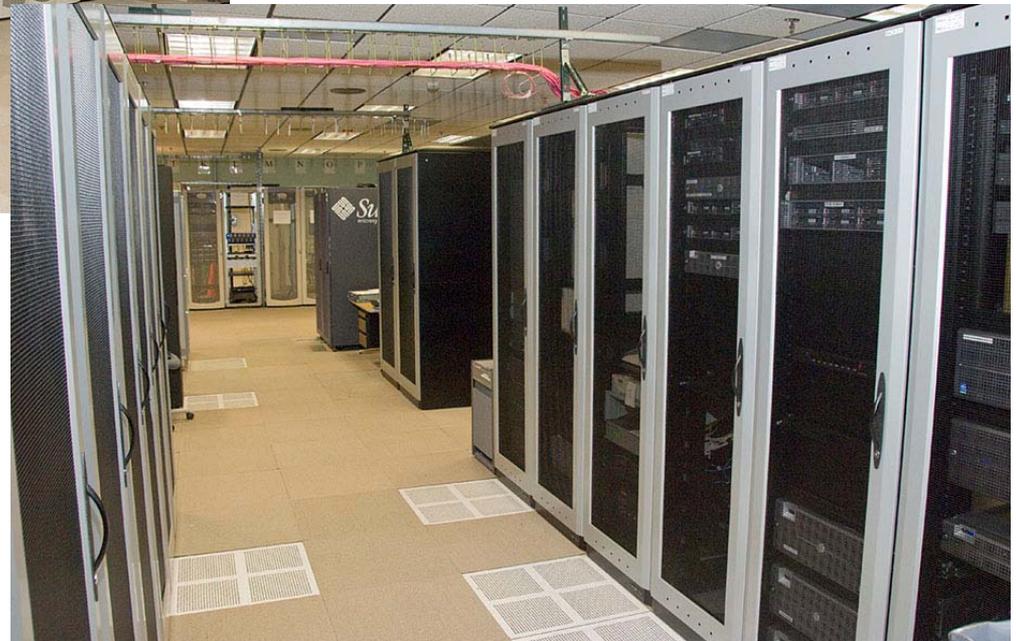




Data Center Environment

DAF Computer Room

Office of the Chief Information Officer





Data Center Environment Future CITC Building

Office of the Chief Information Officer

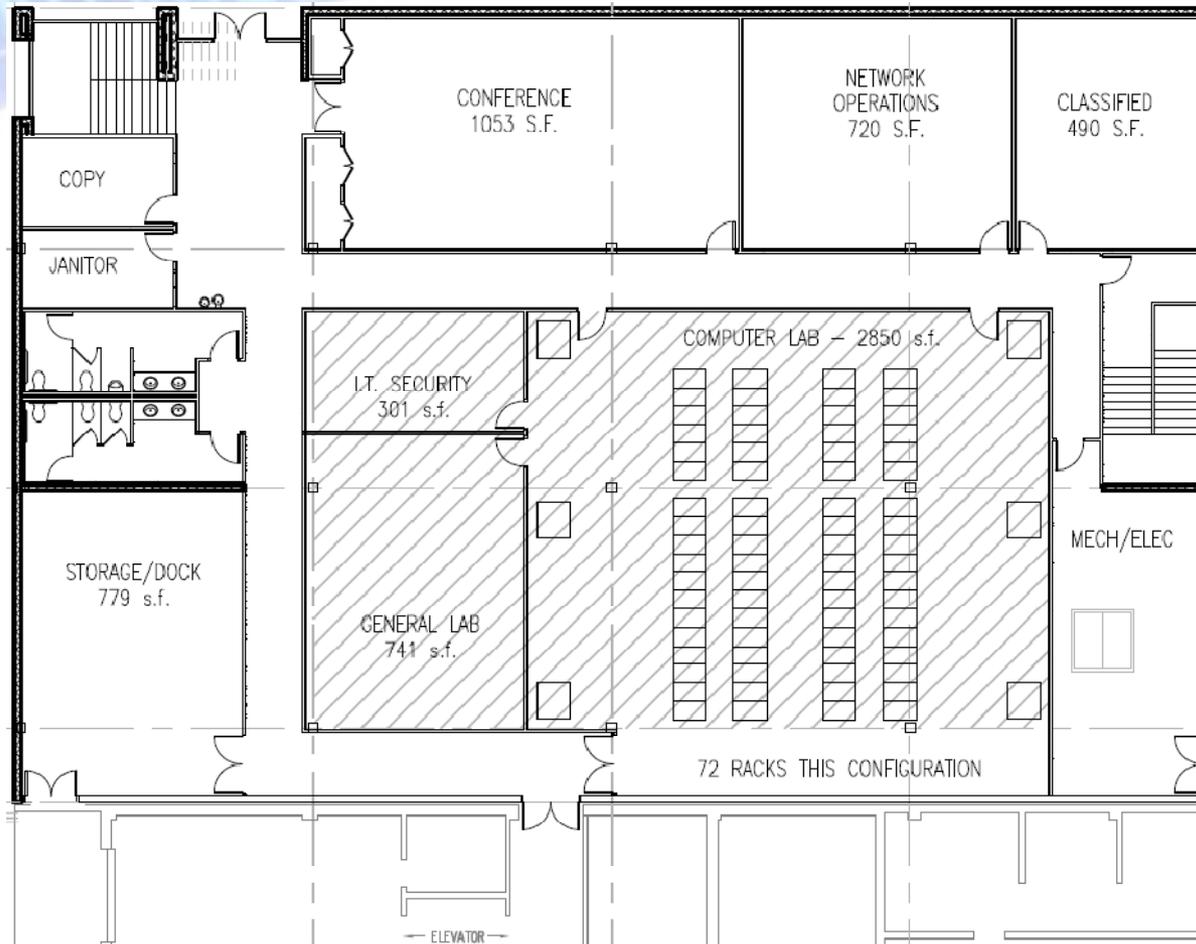
Consolidated IT Center (CITC) plans

- Two story, ~22,000 square foot facility
- Will be built adjacent to DAF (double existing size)
- Scheduled for completion in 2012
- 2850 ft² raised floor space for computer room
- ~1000 ft² raised floor space for Labs
- Built to Tier III specifications
- Powered by 6 PDU's
- Cooled by 6 CRAC units - 4 Ton each



Data Center Environment CITC Computer Room

Office of the Chief Information Officer





Data Center Environment

NEDC PWS

Office of the Chief Information Officer

NEDC Service Offerings:

- **Hosting Services (PWS 4.2)**
 - OS Hosting Services
 - Storage, Backup and Restore
 - Database Admin Management Services
 - Disaster Recovery Services (Midrange)
 - System & Application Monitoring
- **Shared File Services (PWS 4.5)**
 - File Share Services to End Users



Data Center Environment OS Hosting Services

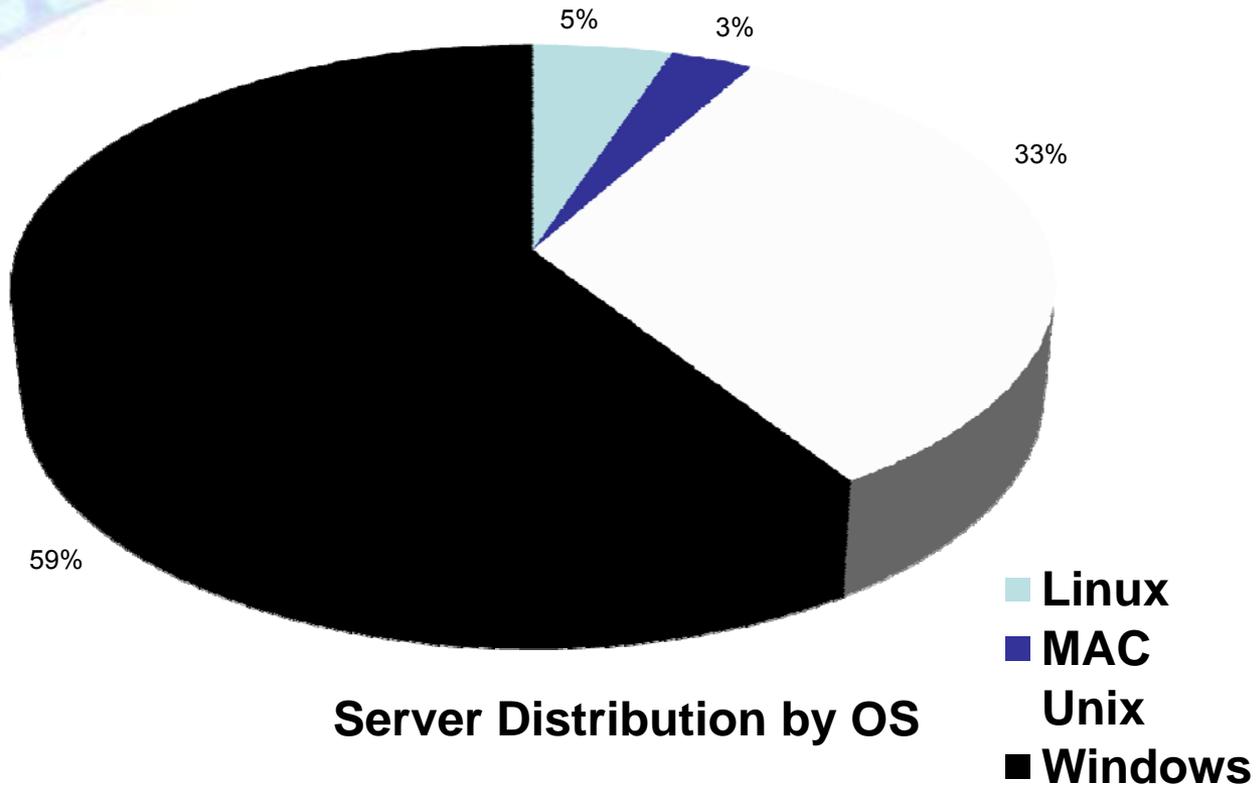
Office of the Chief Information Officer

- **2009 Total = ~170 servers**
 - 97 Windows Based
 - 54 UNIX
 - 5 MAC
 - 9 Linux Red Hat
 - 5 VMware Servers supporting 30VM's



Data Center Environment OS Hosting Services

Office of the Chief Information Officer





Data Center Environment Storage, Backup and Restore

Office of the Chief Information Officer

- SAN for the Virtual Environment is 17 TB
 - Growth expected to be 7 TB each year
- Spectra Logic Tape back up is currently 180 TB
 - Growth 50 TB each year
- Veritas Net Backup is the DFRC Central Backup solution
- Syncsort Backup Express
 - Iron Mountain to backup desktops not otherwise backed up by Veritas.



Data Center Environment Storage, Backup and Restore

Office of the Chief Information Officer

- **Flight Data Analysis System (FDAS)**
 - Highly Sensitive ITAR Project Data
 - Stores all NASA DFRC Historic Flight Data
 - Data handlers must have a Secret Security Clearance.
 - 8TB of Storage
 - Storage Growth dependant on Project requirements.
 - VSANS enable project data separation, so data integrity, confidentiality and availability are not compromised.

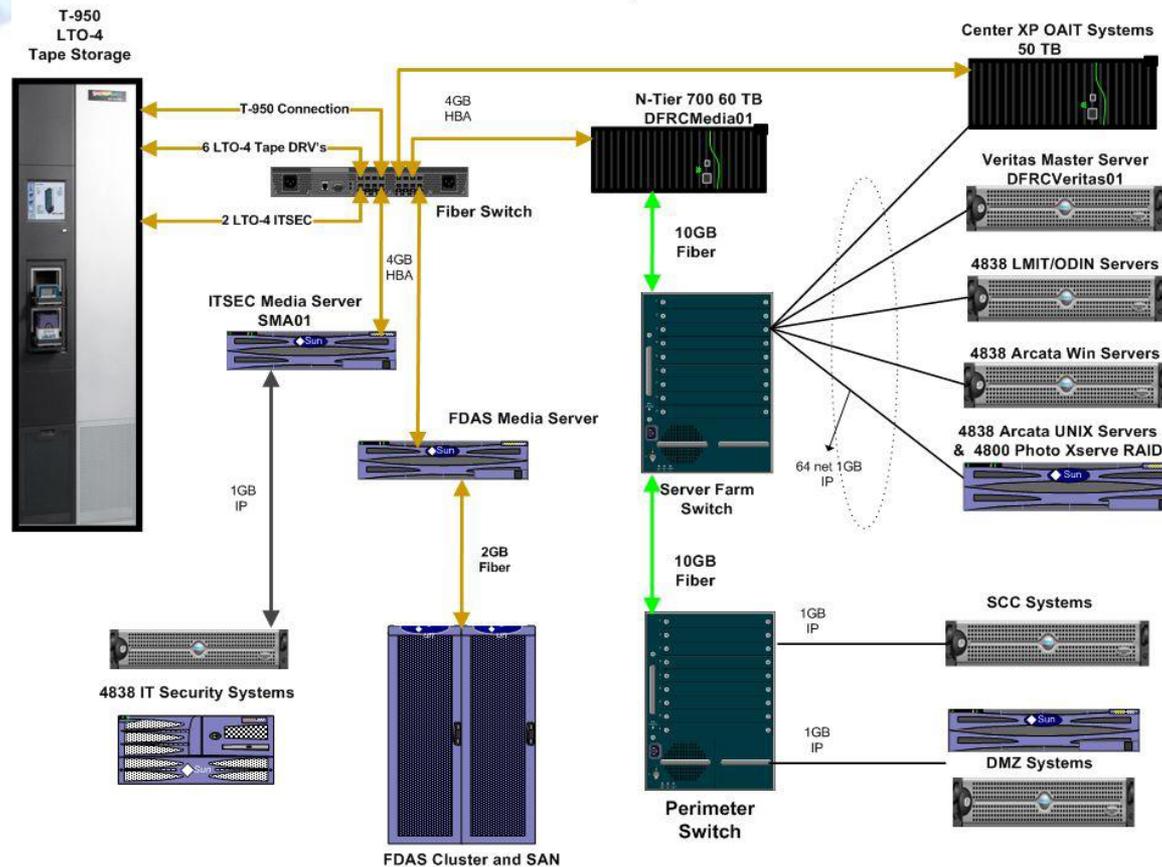


Data Center Environment Storage, Backup and Restore

Office of the Chief Information Officer

DFRC Center Backup Block Level Diagram 4838

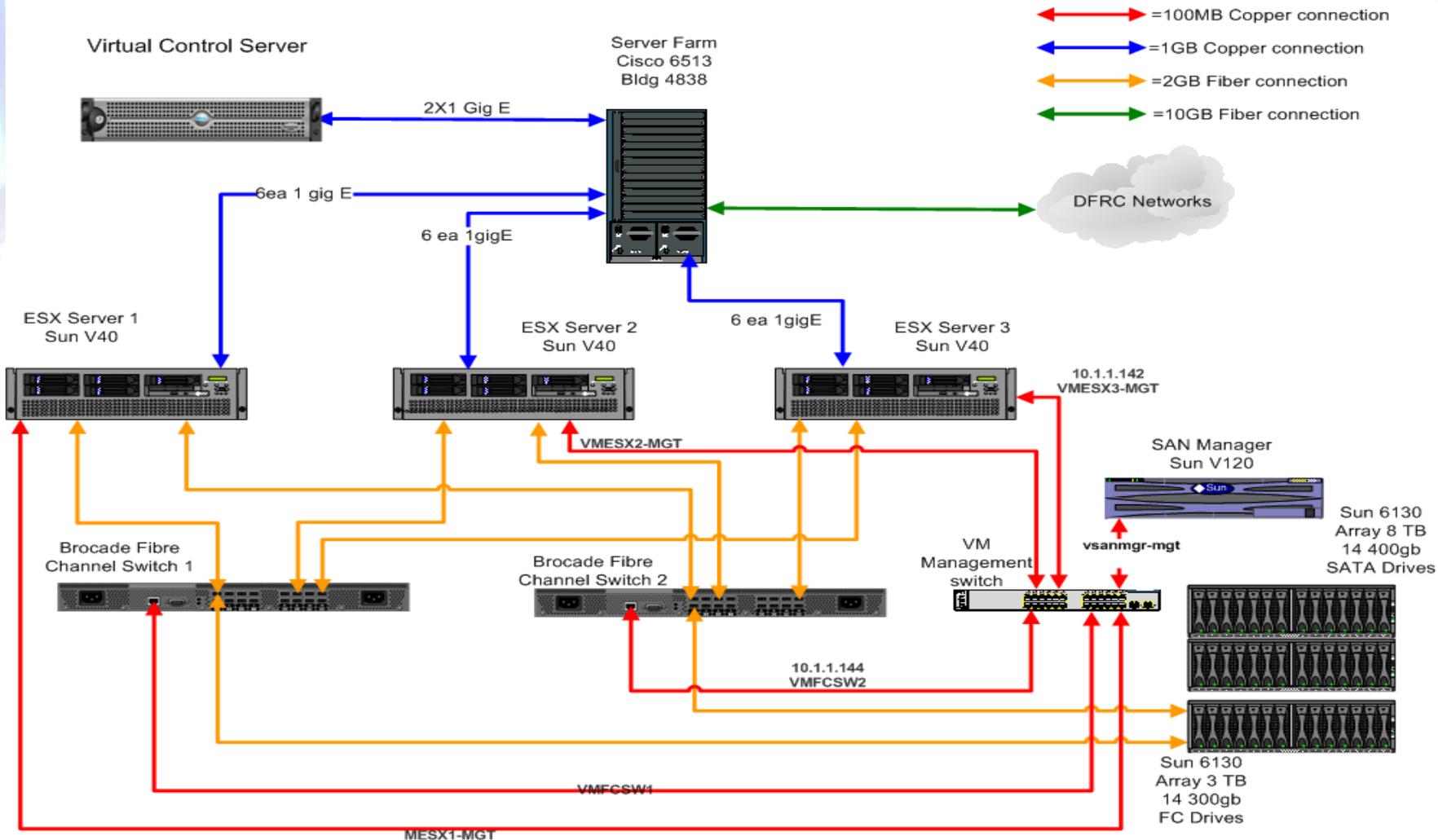
as of 23 May 2008





Data Center Environment Storage, Backup and Restore

Vmware Infrastructure with SATA trays





Data Center Environment Database Management Services

Office of the Chief Information Officer

- **Oracle Cluster**
 - Supports up to 1.9TB's
 - 4 quantity T-2000 Servers
 - Supports NASA and projects throughout the center



Data Center Environment Disaster Recovery Services

Office of the Chief Information Officer

- **Iron Mountain**
 - Backup PC data automatically, consistently and securely
 - Automatically encrypt sensitive files to thwart unauthorized access
 - Enable users to quickly restore lost or damaged files following a disaster
 - Support compliance requirements for data privacy and protection
 - Adheres to NPR/NPD-2810 Agency Directives
- **Backup tapes stored offsite on monthly basis**



Data Center Environment

DAOF Data Center

Office of the Chief Information Officer

- Remote location Dryden Aircraft Operations Facility (DAOF)
 - Tier 2 Data Center.
 - Supports 225 users.
 - Supports Highly Visible Agency Projects
 - Supports Mission Critical Data and Applications.

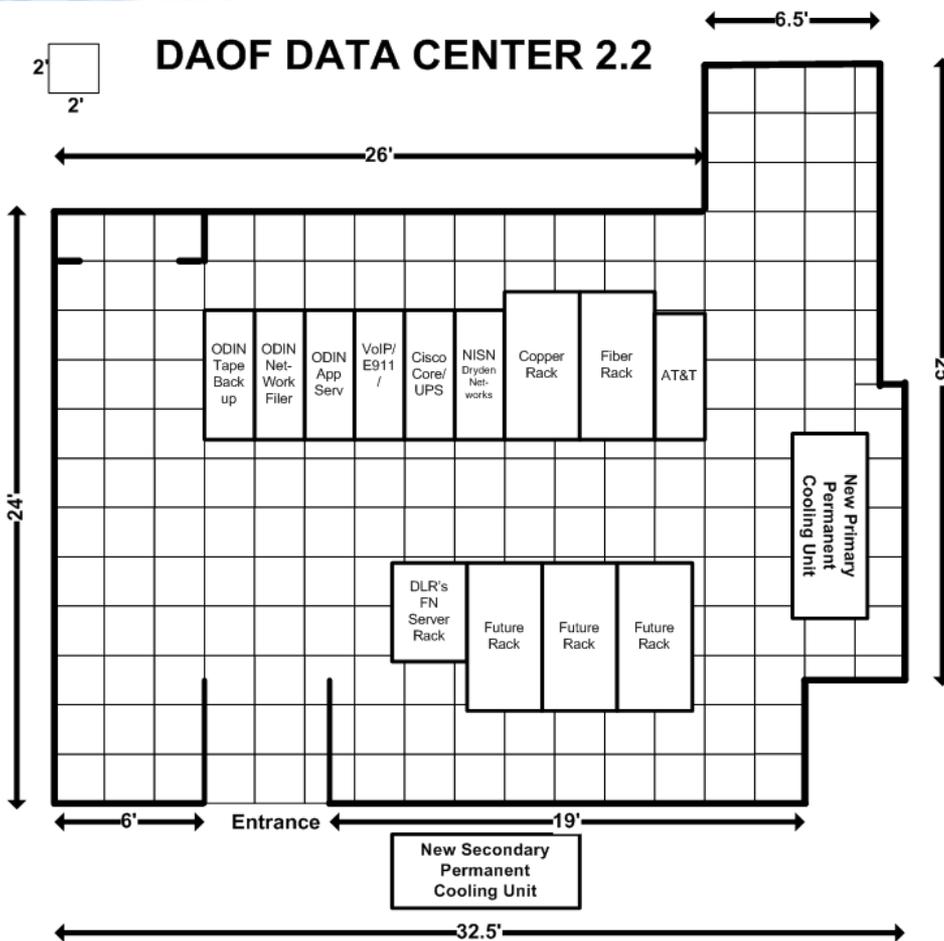


Data Center Environment

DAOF Data Center

Office of the Chief Information Officer

780 sq ft





Data Center Environment

DAOF Data Center

Office of the Chief Information Officer

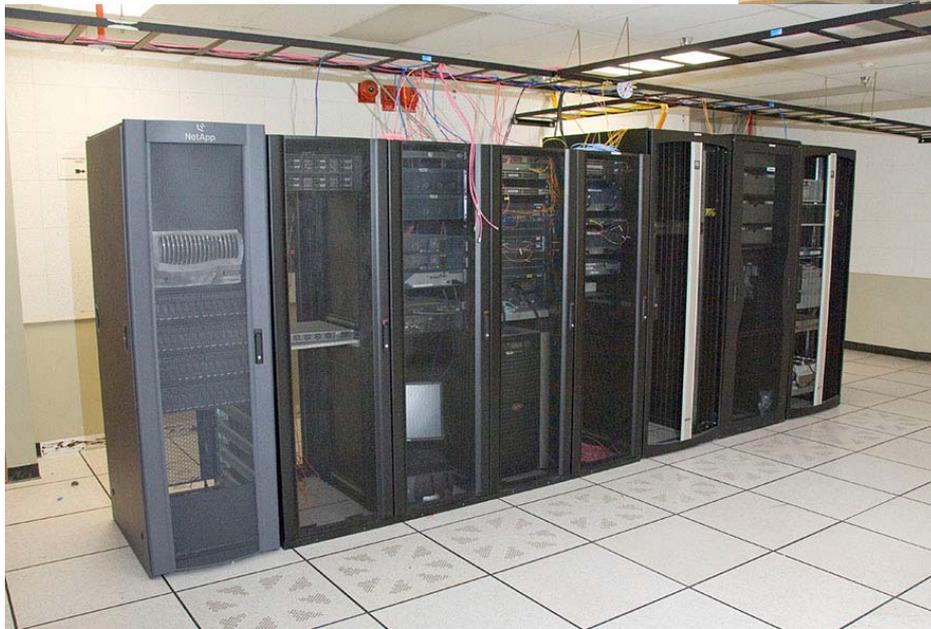
- 2 Quantity 5 Ton CRAC units to support environmental cooling.
- Raised floor 8 inches deep.
- Fire Suppression System
- 2 Factor Badging to gain entrance
- Supports 225+ users



Data Center Environment

DAOF Data Center

Office of the Chief Information Officer





Agenda

Office of the Chief Information Officer

- Center Overview
 - David McBride
Center Director, Acting
- I3P Overview
 - Robert Binkley, CIO
- **DFRC IT Infrastructure**
 - Network Environment
 - Dennis daCruz
 - Data Center Environment
 - Greg Coggins
 - End User Environment
 - Brian Villalva
- Break (15 minutes)
- Center Tour (~1 Hour)
- Lunch/Travel to DAOF
- DAOF Tour (meet in Palmdale at DAOF Visitor Center @ 2 PM)



End User Environment

Office of the Chief Information Officer

Agenda

- What is ODIN?
- Service Model
- Services Provided
- Catalog / Asset Management
- Performance Metrics
- Center Unique Software
- Service Demographics
- Service Locations
- Additional Service Requirements

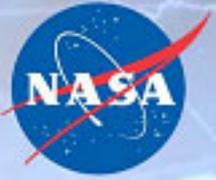


End User Environment

What Is ODIN?

Office of the Chief Information Officer

- Outsourcing Desktop Initiative for NASA (ODIN)
 - IT services contract which provides desktop, workstation, laptop, server and communication assets and services for the Agency
- Scope of ODIN at DFRC
 - Desktop services (e.g., desktop, laptop, and workstation support, Windows, Mac and UNIX platform are available)
 - Mobile computing services (e.g., cell phones, BlackBerrys, and pagers)
 - Administrative and back office server support (e.g., file, print, email, application, and internal web servers)
 - Additional services include network printers, backup services, web conferencing, file shares, etc.



End User Environment Service Model

Office of the Chief Information Officer

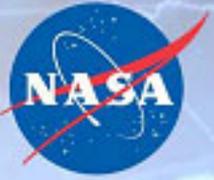
- Service model includes "seats" for each of the services (e.g., desktop seats, workstation seats, laptop seats, and mobile computing seats)
- Each seat has a pre-defined set of standard services included in the seat price
- If the standard services do not meet the user's requirements, the user may order optional service levels to provide the necessary services at an additional price
- Catalog items can be ordered to supplement seat services



End User Environment Services Provided

Office of the Chief Information Officer

- Each seat includes the necessary IT support services:
 - Hardware and software support e.g., installation, maintenance, and technology refresh
 - Administration, relocation, and network access
 - Customer support and training
 - Server services (e.g., file, print, e-mail, and application servers)
 - Supports HSPD-12 compliance for two factor authentication and SmartCard readers



End User Environment Services Provided

Office of the Chief Information Officer

- Standard services for all computer seats
 - Hardware technology refreshment every three (3) years
 - Software technology refresh within one year of latest release from vendor, with concurrence from NASA
 - ODIN Help Desk
 - Single point of contact
 - Tracks problem from initial call through resolution, including support redirected to other service desks (e.g. IEMP Help Desk, Local DFRC Help Desk, etc.)



End User Environment Catalog / Asset Management

Office of the Chief Information Officer

- Catalog Services
 - Supports ordering of additional services including, but not limited to hardware, software outside the standard load, consumables, input devices, and storage
 - Request for Quote: If the Catalog does not have what is needed, a request for quote can be submitted
 - A quote is provided within 2 days
- Asset Management
 - Assets are tagged with a unique numerical identifier for management, tracking, and audit purposes



End User Environment Performance Metrics

Office of the Chief Information Officer

- Achieve or Exceed performance metrics
 - Customer Satisfaction rating meets/exceeds 95.0%
 - Customer satisfaction reflects above average satisfaction
- Availability rating meets/exceeds 98%
 - Seats and associated services have been fulfilled 99%
- Services Delivery rating meets/exceeds 98.0%
 - Products and services are delivered in accordance with contract requirements



End User Environment Center Unique Software

Office of the Chief Information Officer

- Provide installation, support and software license management for specialized software titles:
- Prime examples include:
 - Autodesk AutoCAD
 - Hummingbird Exceed
 - The MathWorks MATLAB



End User Environment Service Demographics

Office of the Chief Information Officer

- ~1,200 Dryden Civil Servants and Contractors
 - Engineers – 40%
 - Researchers – 20%
 - Technicians – 10%
 - Professional/Administrative – 30%



End User Environment Service Locations

Office of the Chief Information Officer

- **Dryden Main Campus – Edwards AFB**
 - Windows Laptops - 600
 - Mac Laptops - 135
 - Windows Desktop - 380
 - Mac Desktops - 22
- **Dryden Aircraft Operations Facility (DAOF) – Palmdale**
 - Windows Laptops - 65
 - Mac Laptops - 6
 - Windows Desktop - 20
- **AERO Institute – Palmdale**
 - Windows Laptops - 14
 - Mac Laptops - 2



End User Environment Additional Service Requirements

Office of the Chief Information Officer

- Additional Existing Seat Management Requirements
 - Workstations – 72
 - Windows - 54
 - Mac - 9
 - LINUX - 9
 - Mobile Computing (BlackBerry) – 317
 - Cell Phones – 261
 - Virtual Team Meeting Seats - 26



Agenda

Office of the Chief Information Officer

- Center Overview
 - David McBride
Center Director, Acting
- I3P Overview
 - Robert Binkley, CIO
- DFRC IT Infrastructure
 - Network Environment
 - Dennis daCruz
 - Data Center Environment
 - Greg Coggins
 - End User Environment
 - Brian Villalva
- Break (15 minutes)
- Center Tour (~1 Hour)
- Lunch/Travel to DAOF
- DAOF Tour (meet in Palmdale at DAOF Visitor Center @ 2 PM)



DFRC Tour

Office of the Chief Information Officer

