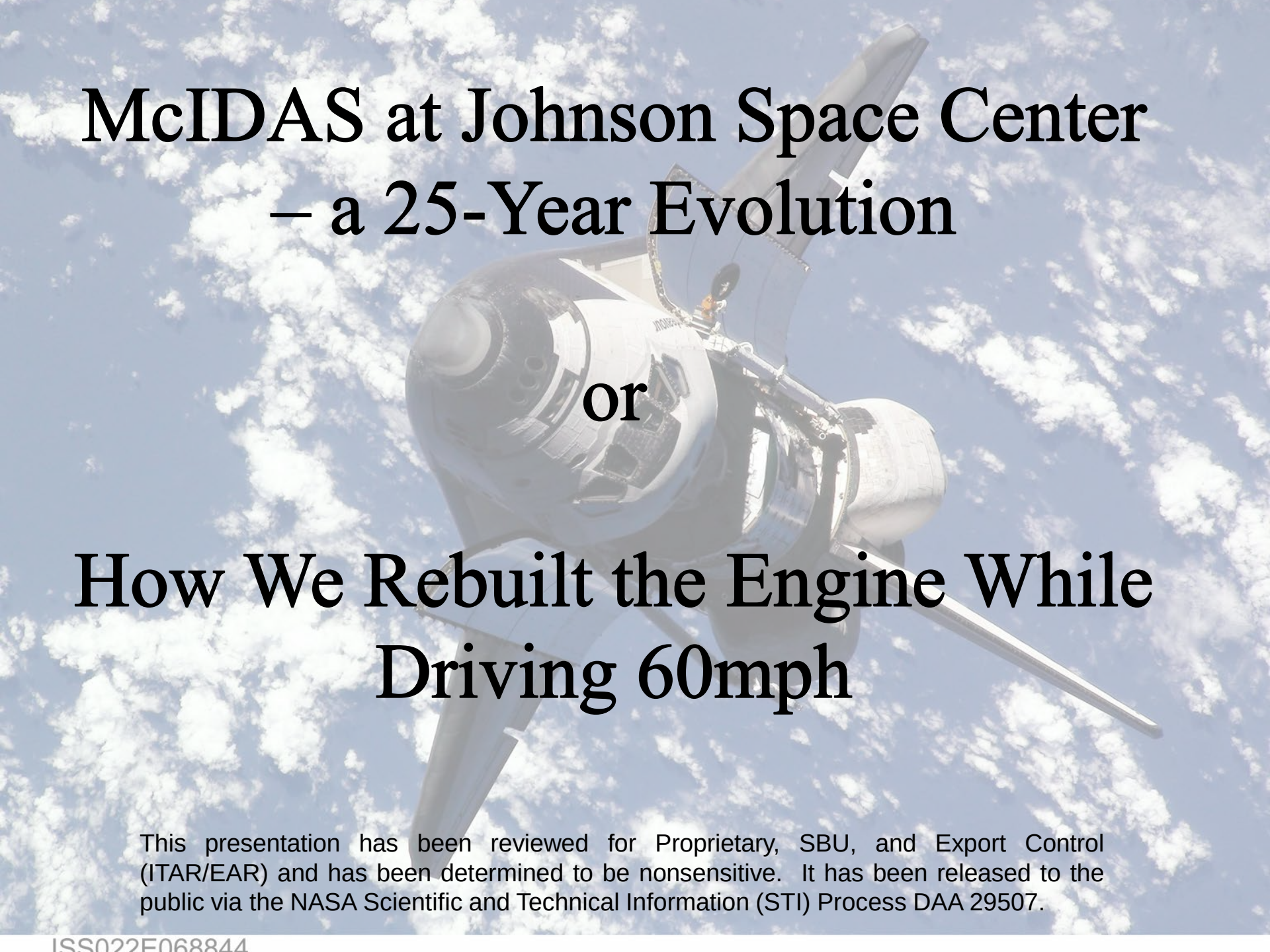
McIDAS at Johnson Space Center – a 25-Year Evolution

or

How We Rebuilt the Engine While Driving 60mph



This presentation has been reviewed for Proprietary, SBU, and Export Control (ITAR/EAR) and has been determined to be nonsensitive. It has been released to the public via the NASA Scientific and Technical Information (STI) Process DAA 29507.

ISS022E068844

McIDAS History at JSC

- 1984 – Site survey for JSC MIDDS by UW SSEC
- 1985 – remote McIDAS workstation at JSC to CCAFS
- 1986 – Challenger accident (Rogers Commission recommends increased weather support)
- 1987 – Installation of JSC MIDDS – development of custom applications for Shuttle operations on McIDAS foundation
- 1988 – STS-26 Return to Flight – first operational release of JSC MIDDS (two weeks before launch!)
- 1995 – First Evolution – rehost from IBM 4381 mainframe to distributed HPUX workstations
- 2007 – Second Evolution – rehost from HPUX to RedHat Linux on HP ‘PC’
- 2011 – End of the Shuttle Era – JSC MIDDS?
- 2013 – NEXT Evolution – RHEL 6 and a new network architecture

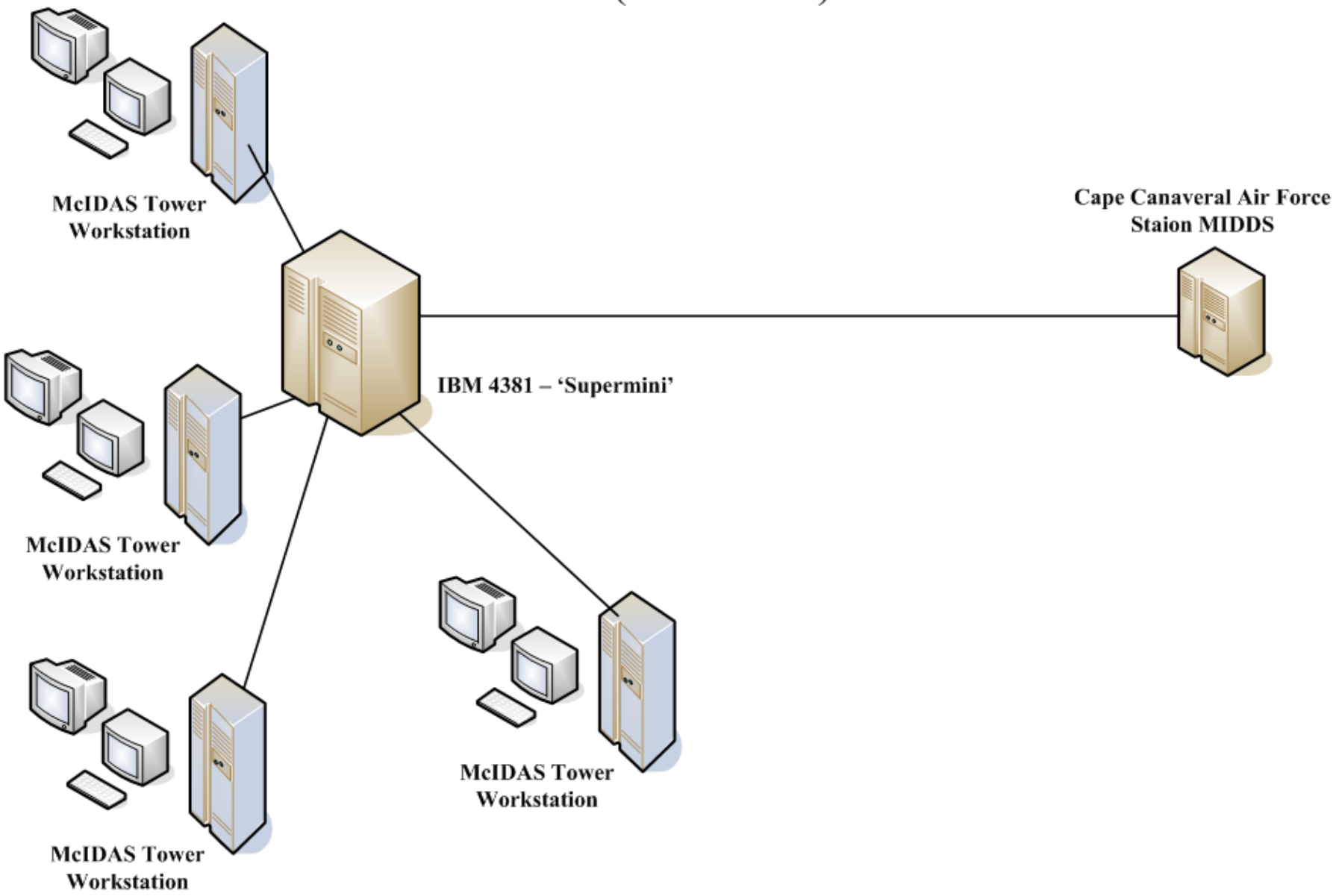
Spaceflight Meteorology Group – the EARLY Years

McIDAS Emerges at JSC (circa 1985)

McIDAS Terminal at JSC

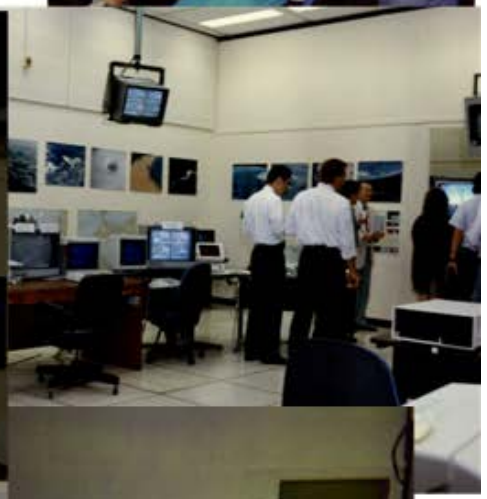
Cape Canaveral Air Force Station MIDDS

McIDAS Emerges at JSC - MIDDS (circa 1987)



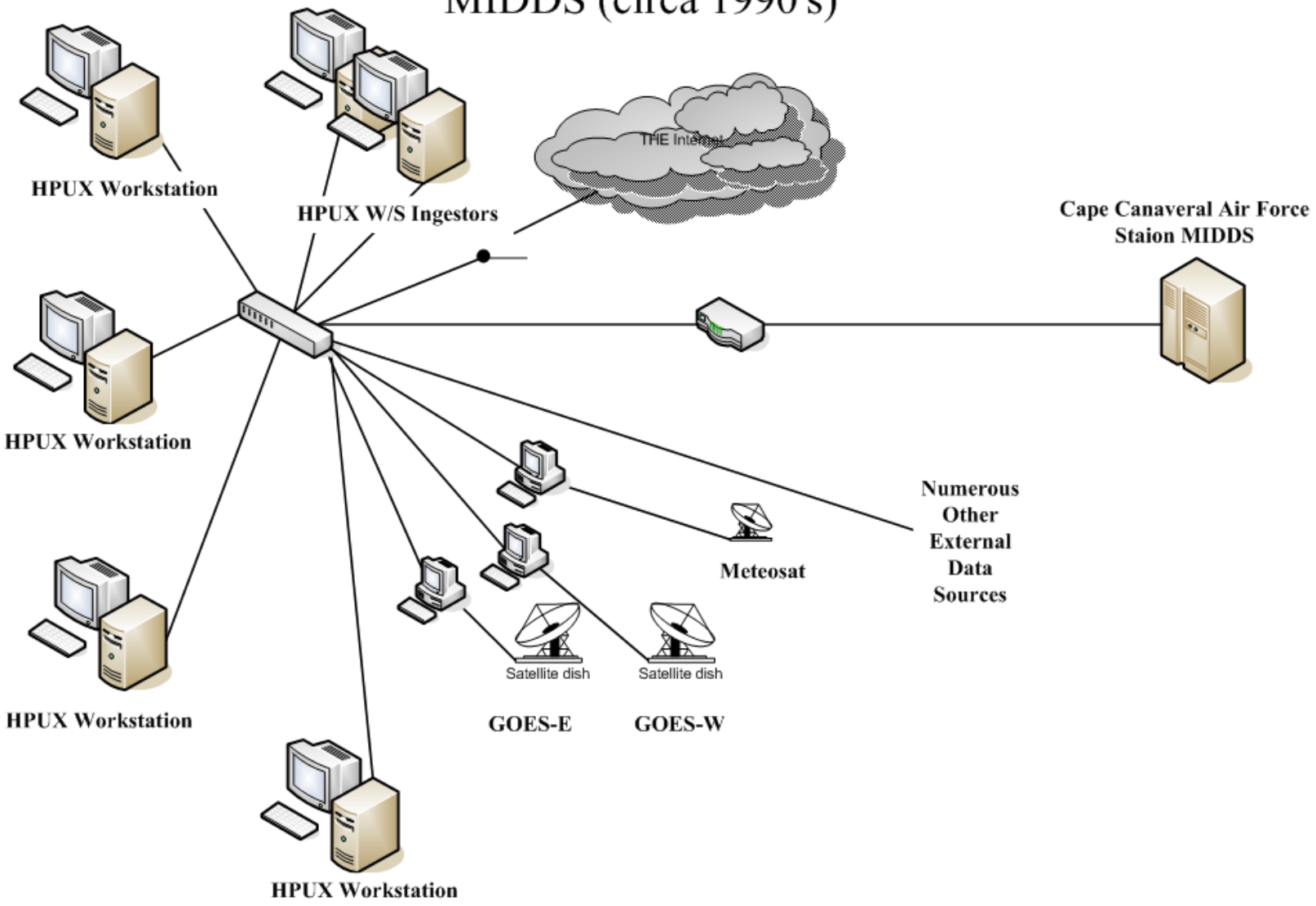
McIDAS Emerges at JSC

Spaceflight Meteorology Group – the early 90's



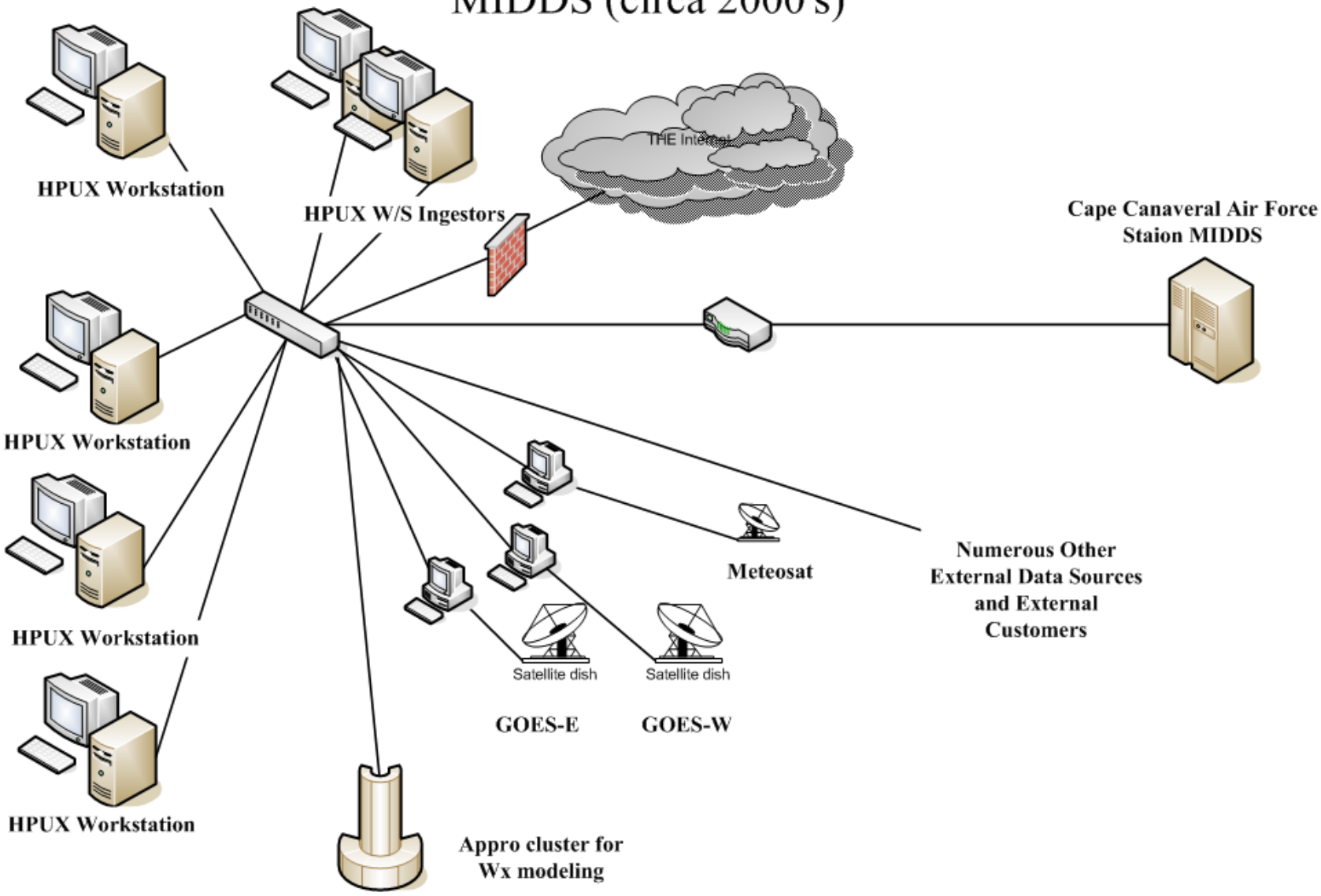
New ’96-‘97

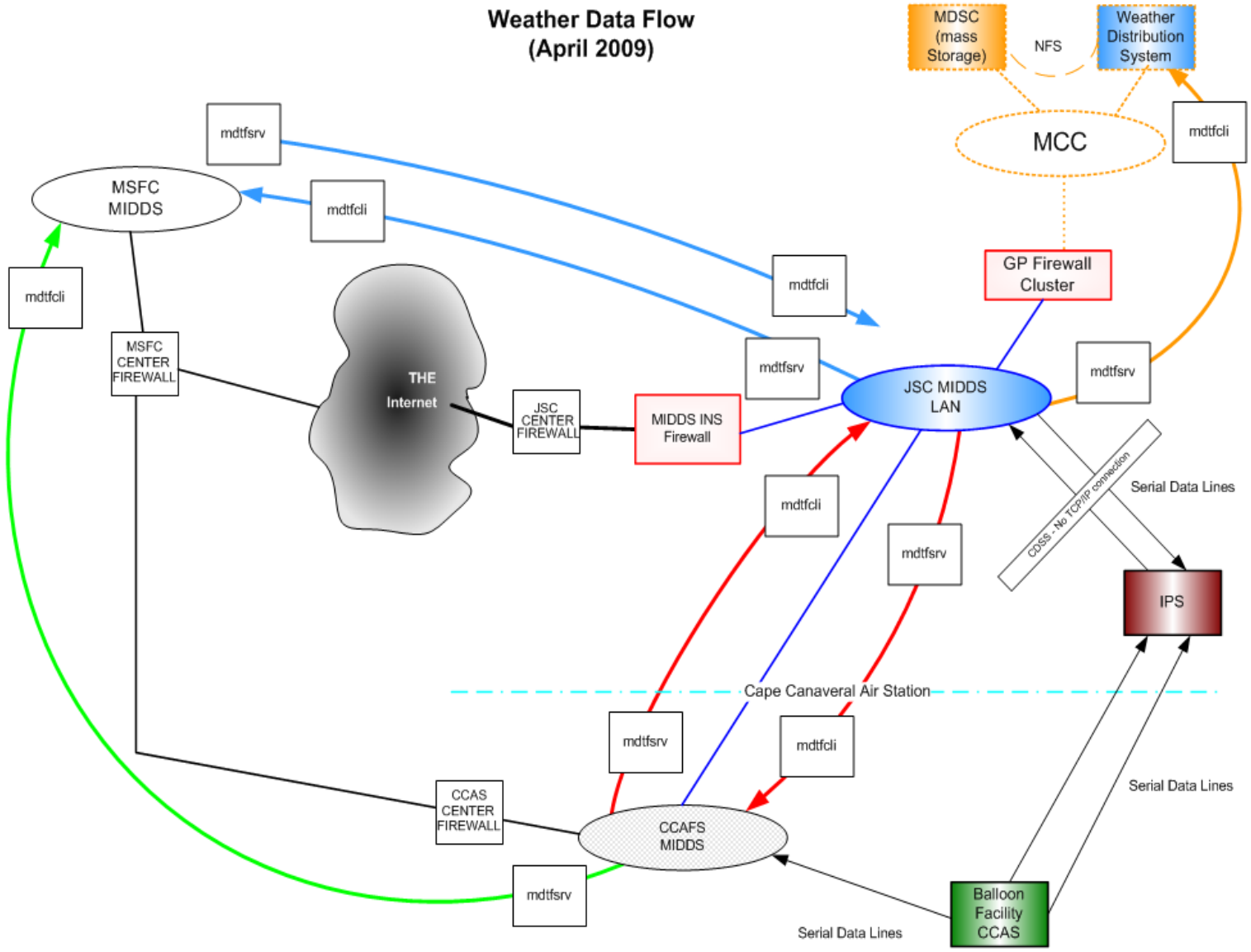
McIDAS at JSC - MIDDS (circa 1990's)



The HPUX Years

McIDAS at JSC - MIDDS (circa 2000's)




Weather Data Flow
(April 2009)
MDSC
(mass
Storage)
NFS
Weather
Distribution
System
MCC
mdtfcli
mdtfsrv
MSFC
MIDDS
mdtfcli
mdtfcli
GP Firewall
Cluster
mdtfcli
MSFC
CENTER
FIREWALL
THE
Internet
mdtfsrv
mdtfsrv
JSC
CENTER
FIREWALL
MIDDS INS
Firewall
JSC MIDDS
LAN
Serial Data Lines
CDSS - No TCP/IP connection
mdtfcli
mdtfsrv
IPS
Cape Canaveral Air Station
mdtfsrv
mdtfcli
CCAS
CENTER
FIREWALL
CCAFS
MIDDS
Serial Data Lines
mdtfsrv
Balloon
Facility
CCAS
Serial Data Lines

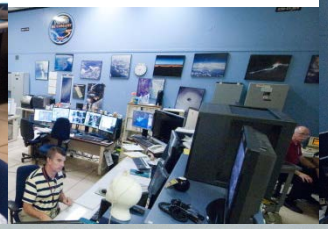
The Linux Era

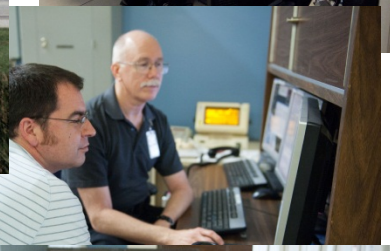
McIDAS at JSC – Why It Was So Important

McIDAS at JSC – What did we accomplish?

- Supported 109 Space Shuttle missions with 100% availability
- Supported numerous Soyuz landings from ISS and other NASA programs as requested (MSFC GRIP, UAV lightning, Dryden flight tests, etc)
- Two major ‘evolutions’ – IBM mainframe to distributed HPUX-based network, HPUX to Linux
  - Evolved while maintaining continuous flight support – “rebuilding the engine while driving 60 mph” (and sometimes *much* faster)
- *MANY* McIDAS updates – including evolution to McIDAS-X and –XCD
- Supplied McIDAS custom code to all three NASA centers

The End of an ERA

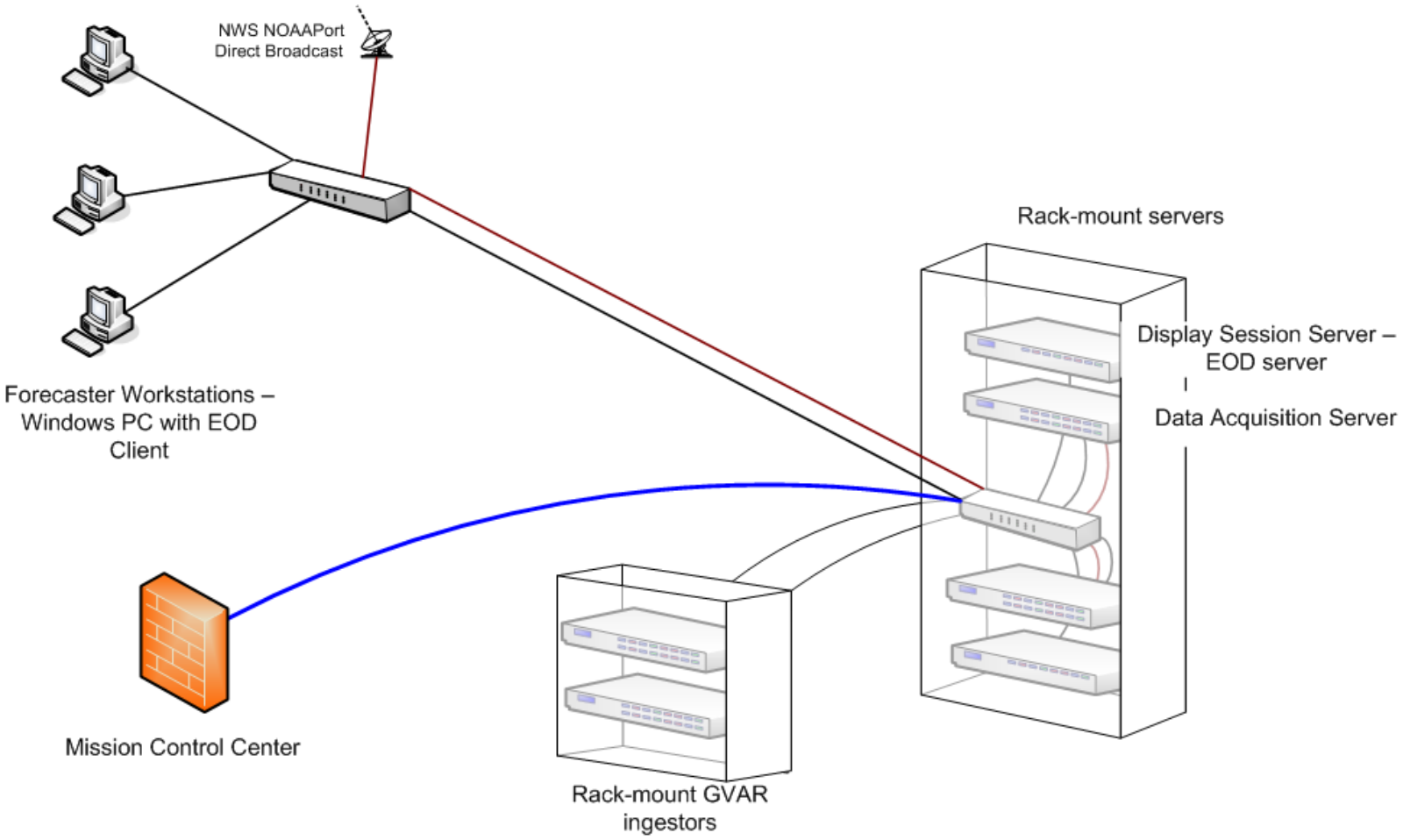




McIDAS at JSC – What's Next?

- MIDDS into the next generation control center – the MCC21 Project
- EFT-1/EM-1 support
- Commercial Crew support
- Continued support to MSFC and CCAFS MIDDS

JSC MIDDS in the 21st Century Control Center




Last, but not least !
Our thanks to SSEC.
Without your support the engine would have dropped out a long time ago…
S130E012312