NFS Network File Server

High-Performance Onboard Connectivity on your Aircraft and across your Fleet

Teledyne Controls' Network File Server (NFS), a key component of Boeing's Onboard Network System (ONS), functions as a stand-alone server to provide a common, compact, non-essential, high-performance onboard network solution. The NFS facilitates data transfer between avionics systems and IP-based equipment, providing greater accessibility to a wide range of applications. This high-reliability device, built to OEM standards, combines in one single and lightweight unit the multiple functions of an ARINC 429 to Ethernet converter, a multicast router, a firewall, a data loader and a communication gateway. The NFS supports a variety of applications, such as distribution and loading of software parts and Electronic Flight Bag (EFB) operations. It facilitates high-capacity collection, distribution and storage of important aircraft data for operations, maintenance and flight safety purposes. For expanded networking capability, multiple NFS units can be connected together and/or interfaced with one or several Teledyne Network Extension Devices (NEDs).

Extensive Networking Functions
The NFS is designed to support extensive networking infrastructures. It connects previously isolated onboard systems and sub-networks with various Ethernet wired interfaces, while enforcing network security with its firewall functionality. The NFS acquires, processes, stores and distributes data for multiple systems and applications. It can also manage Quality of Service (QoS), allowing operators to prioritize traffic for critical applications.

Flexible Communication Gateway
Off board communication is also available through the NFS as the system can interface with a variety of communication systems and high-speed links to provide connectivity between the airplane and the airline's ground networks. For example, the NFS can connect to ACARS and Swift Broadband SATCOM systems for in-flight communications, and interface with a wireless solution such as Teledyne's Wireless GroundLink® System (WGL) for ground-based connectivity.

ARINC 615-4 and ARINC 615A Data Loading
The NFS replaces the Airborne Data Loader as it provides full 615-4 and 615A data loading capability. This allows operators to streamline their data loading processes by eliminating the need to reproduce, distribute and load countless floppy disks every month. The NFS also provides file storage and management services with an integral solid state drive. When using the NFS with Teledyne's WGL System and LoadStar® Server Enterprise (LSE) ground-based software, operators can fully automate the electronic distribution and loading of software parts across their fleet.

Application Hosting
Teledyne's NFS can host a range of existing applications, such as Engine Trim Balance, Weight and Balance, Log Book and virtual QAR, to perform a variety of tasks for installed systems. The NFS also provides a software framework that enables airlines to develop their own applications to access NFS based features and services.

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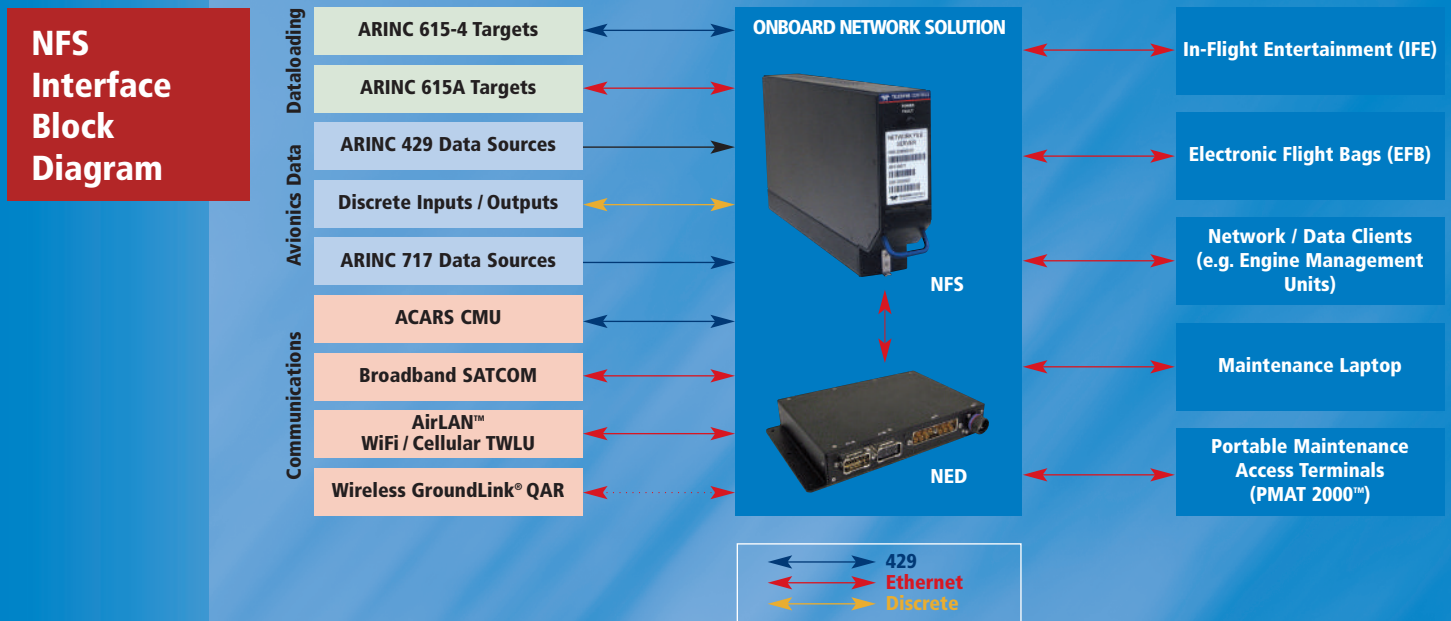
OEM QUALIFIED DEVICE

Teledyne's NFS is a high-performance networking system designed to stringent Boeing OEM standards. As a result, it meets rigorous requirements for functionality, reliability and performance in severe environmental conditions. This high caliber system delivers the long-term dispatch reliability that operators expect from avionics class equipment. It is standard on Boeing 747-8 and offerable on Boeing 777 aircraft.

KEY FEATURES

- Netwok management
- ARINC 429 to Ethernet converter
- Switch and Router functions in one single unit
- 615-4 and 615A data loading
- 615A loadable (over Ethernet)

- Wireless staging of LSAPs
- ACARS interface
- IP communications management
- Ground maintenance access for Ethernet, USB, RS422/232 and VGA ports

CHARACTERISTICS

- PPPoE network protocol
- Port mirroring
- Extended networking with multiple NFS and NEDs
- 11 Quadrax Ethernet ports
- Avionics interfaces (ARINC 429, 717 and airplane discretes)
- 64GB Solid State Disk (SSD) storage

- Size: 2 MCU case per ARINC 600
  15.1" L x 2.27" W x 7.62" H
  383 mm x 57 mm x 193 mm
- Weight: 6.5 lbs / 3 kg
- Power: 50 watts max at 115VAC 400Hz
- Meets DO-160E category A2 environment

NFS Interface Block Diagram

Dataloading
- ARINC 615-4 Targets
- ARINC 615A Targets

Avionics Data
- ARINC 429 Data Sources
- Discrete Inputs / Outputs
- ARINC 717 Data Sources

Communications
- ACARS CMU
- Broadband SATCOM
- AirLAN™ WiFi / Cellular TWLU
- Wireless GroundLink® QAR

ONBOARD NETWORK SOLUTION

NFS

NED

- In-Flight Entertainment (IFE)
- Electronic Flight Bags (EFB)
- Network / Data Clients (e.g. Engine Management Units)
- Maintenance Laptop
- Portable Maintenance Access Terminals (PMAT 2000™)

Legend:
- 429
- Ethernet
- Discrete

SOLUTIONS FOR A "CONNECTED AIRCRAFT"

The NFS is a key element in Teledyne Controls' complete "Connected Aircraft" solution, which consists of bridging traditional avionics equipment with new Ethernet-based systems. By integrating a wide range of products that support both traditional ARINC 429 and TCP/IP interfaces, Teledyne's "Connected Aircraft" facilitates connectivity both onboard the aircraft, and between the aircraft and the airline's corporate network.