
**A REFERENCE ARCHITECTURE
for
SATELLITE OPERATIONS CONTROL SEGMENTS
within the
SATELLITE CONTROL NETWORK**

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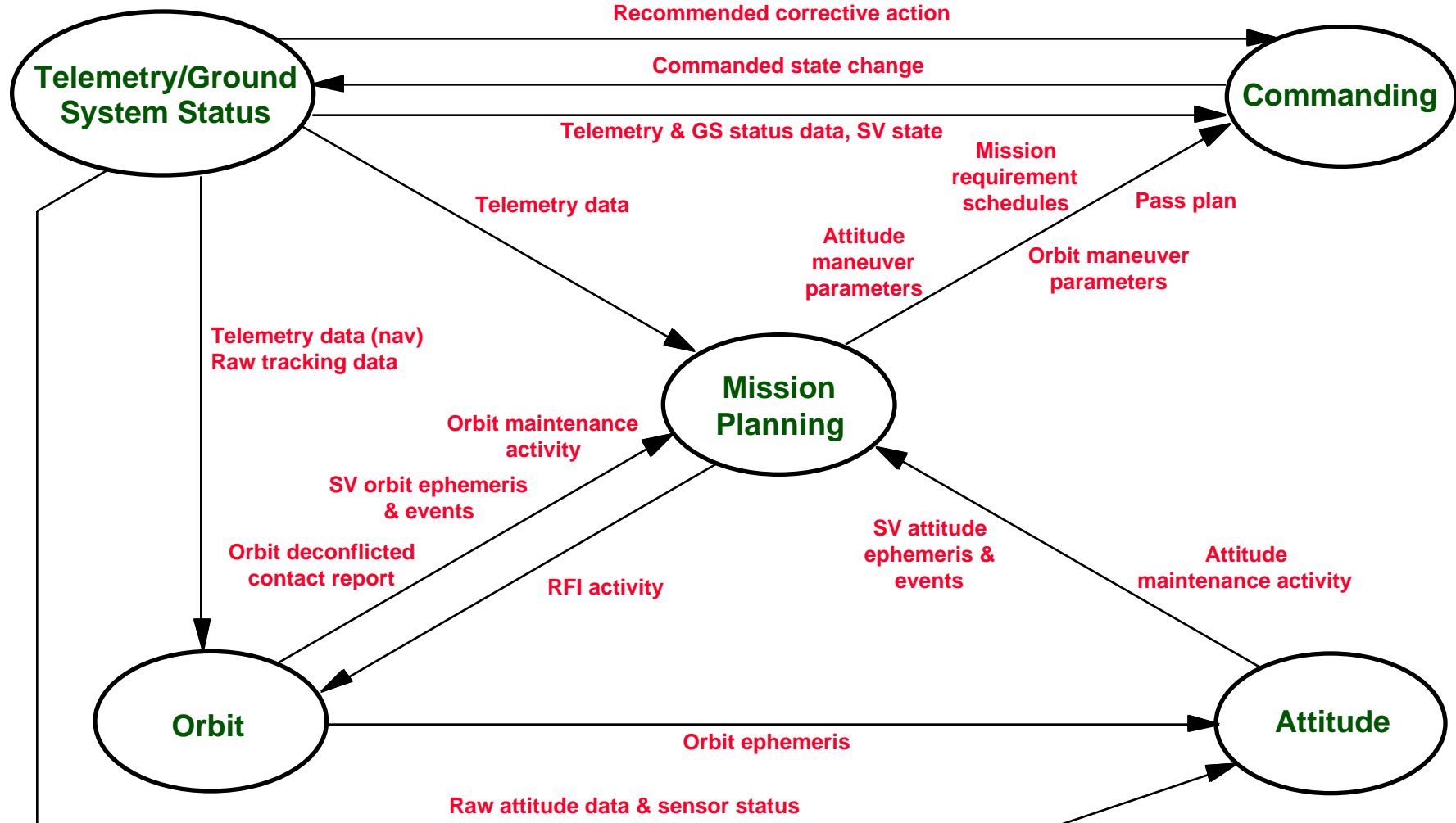
26 February 1997

Reference Architecture Definition

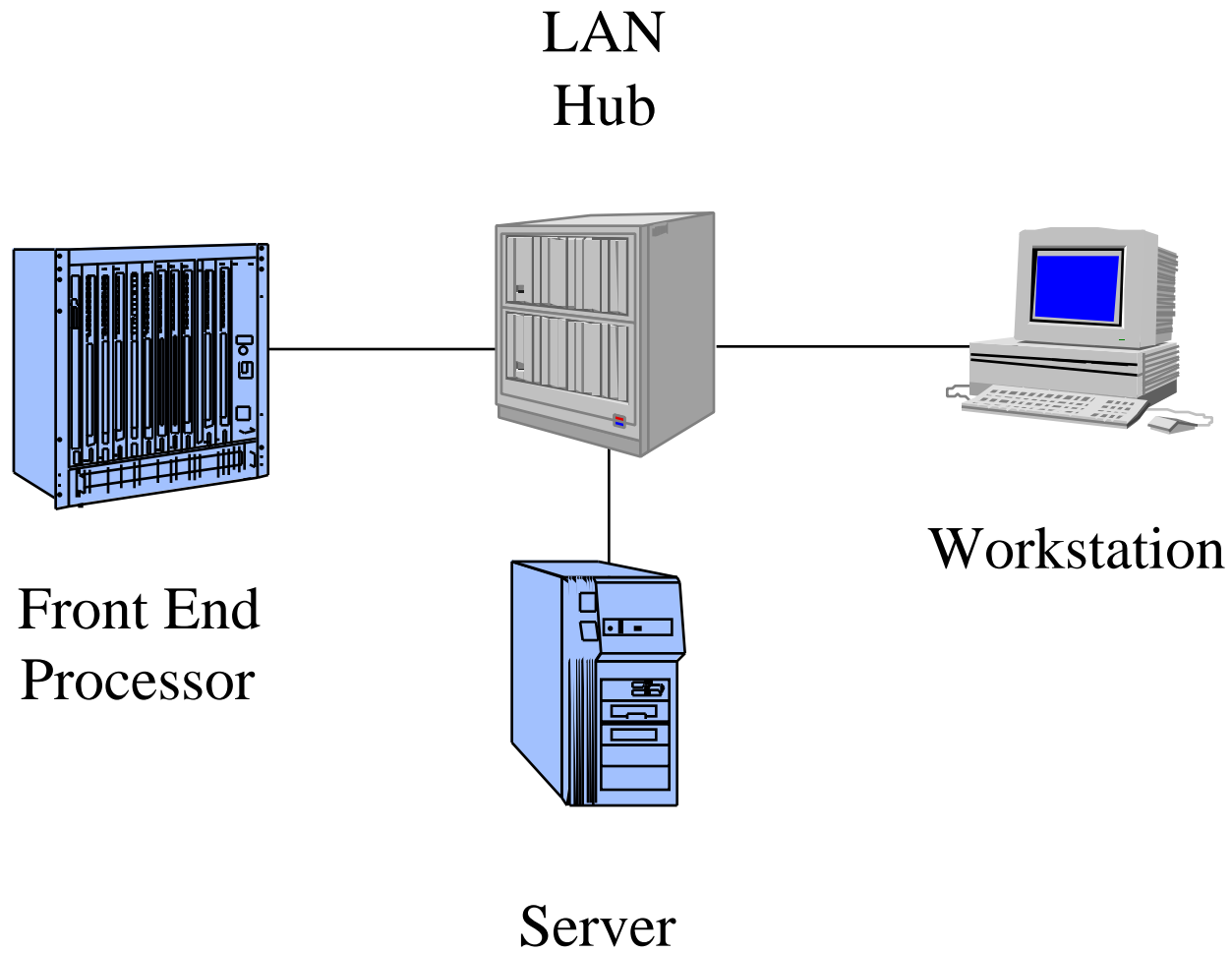
“A high level system description that is free of implementation details”

- **Describes system components & relationships between components**
 - **Data Flow Diagrams (DFDs)**
 - » Data flow between components and processes
 - » Functional decompositions
 - » External element interfaces
 - » Data sources and stores
 - **Control Flow Diagrams (CFDs)**
 - » Timing relationships between processes
 - » Iterative or cyclic processing
 - **Application Program Interface (API) Definition**
 - » Key component interfaces and parameters
 - » Basis for standardization of application interfaces
- **Identifies performance drivers and capacity requirements**
 - **Computer power (processing load)**
 - **Network capacity (data throughput)**
 - **Data storage**

Inter-application Interfaces - Performance Drivers

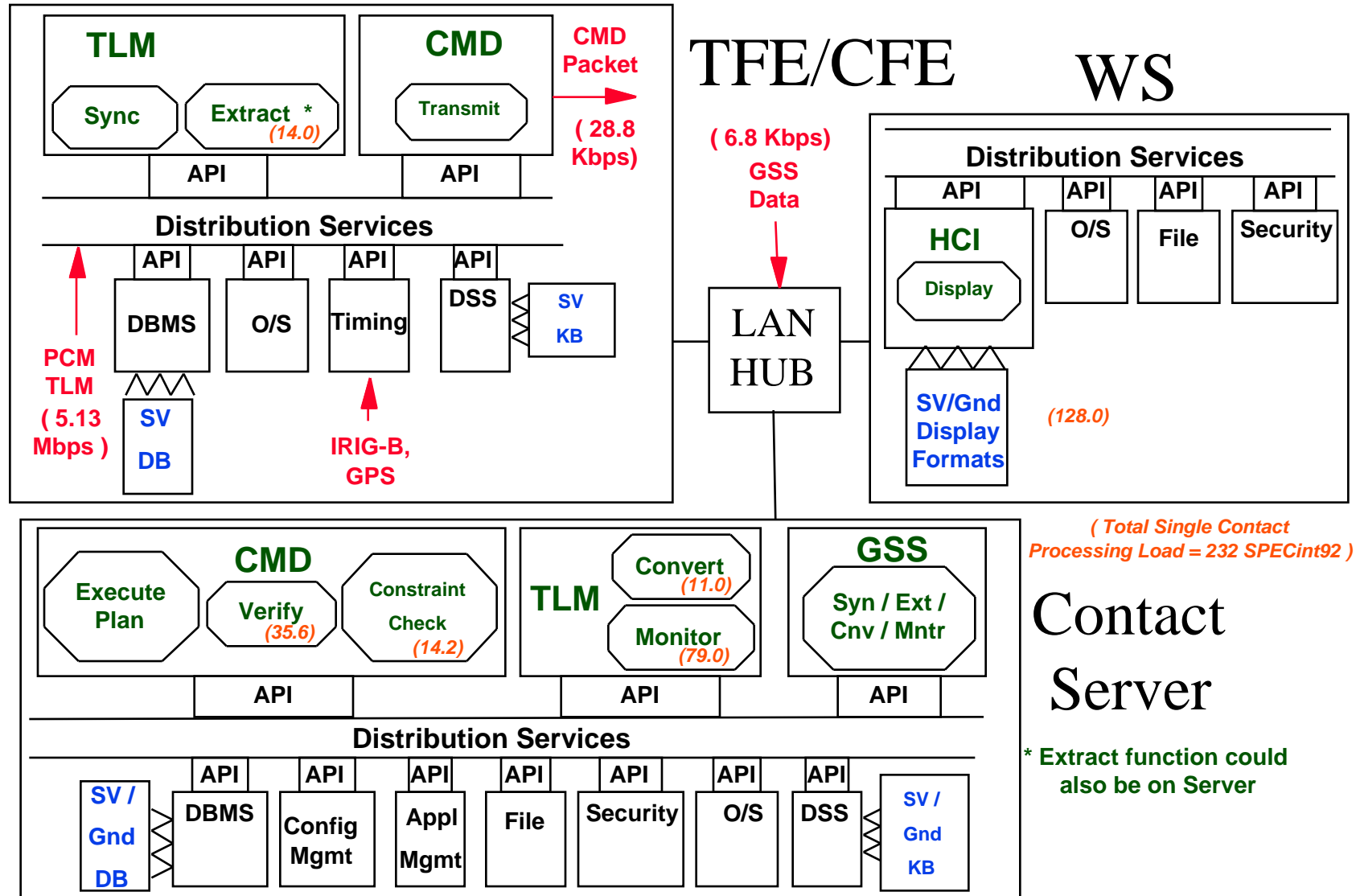


Hardware Architecture Elements

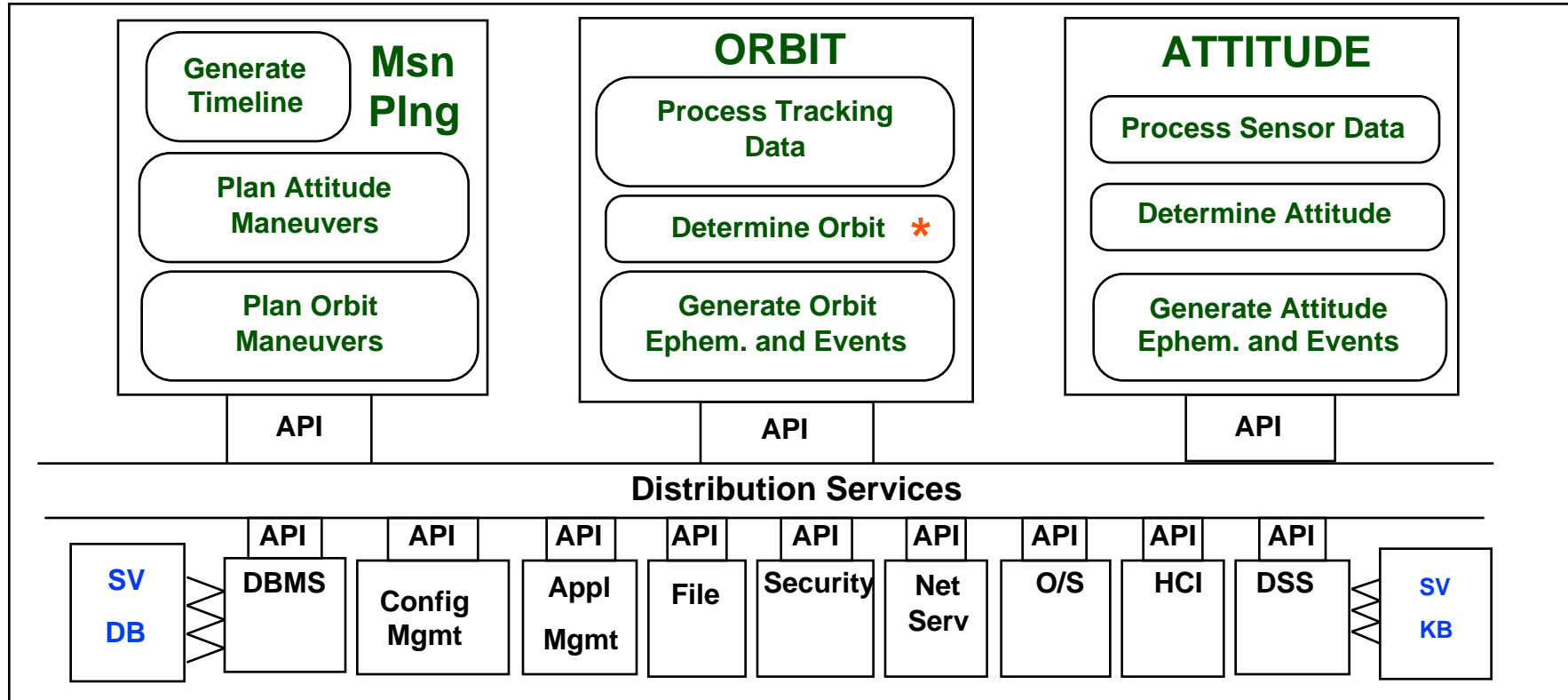


Contact Platform Configuration

- Non-nominal Telemetry Processing, High Commanding Rate -



Planning Platform Configuration



** Maximum processing load = 89.0 SPECfp92*

Technological Influences on Architecture

- **Software Technologies**
 - **Middleware (application interfaces, integration)**
 - **Decision Support (rule-based, case-based, neural networks)**
 - **Human Computer Interface (GUI builders)**
 - **Databases (replication & partitioning; OO & relational)**
 - **Network management (data access, overhead)**
- **Hardware Technologies**
 - **Performance and scalability (delineation between “servers” and “workstations”)**
 - **Local Area Network (topology, bandwidth)**
 - **Fault tolerance (high availability)**
 - **Security (firewalls, reliable release mechanism, multi-level LANs)**