

CASE STUDY

NASA NEAR SPACE NETWORK AUTOMATED SERVICE MATCHMAKING

The NASA Near Space Network (NSN) is an integrated, multi-mission space and ground network that provides communications and navigation services using a global portfolio of more than 50 government and commercial direct-to-earth (DTE) and space relay (SR) antennas. The NSN supports a wide range of user mission profiles, including disposable and reusable launch vehicles, Low Earth Orbit (LEO) and Geosynchronous Earth Orbit (GEO) satellites, Lunar and cis-Lunar orbiters and landers, Lagrange point observatories, and hosted payloads.

For a mission to utilize NSN services, NSN mission commitment engineers (MCEs) must match the mission's requirements, such as link characteristics, communications protocols, and data delivery preferences, with the capabilities of specific government or commercial antennas within the network. This process has traditionally required extensive manual review across multiple disparate data sources.

To improve the efficiency of mission onboarding, Kurtek engineers developed a unified, highly scalable data model that enables the consolidation of disparate network asset data sets, including antenna and ground equipment characteristics and capabilities, mission technical requirements and service level agreements, and network element topology and data delivery capabilities. Provisioned through a cloud-first database architecture, the data model enables the deployment of an automated service matchmaking capability capable of performing on-demand, real-time evaluation of mission requirements and automatic identification of specific network assets capable of providing those services.

KEY RESULTS

- Developed data model and database architecture to manage NSN network service, commercial provider, and user mission data.
- Designed real-time, on-demand mission requirement collection and mission-to-provider matchmaking capability.

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To learn more about our capabilities, email us at info@kurtek.io or call our team at 703-943-7236.