



Change astronomy today to unveil the mysteries of the universe

Why ALMA needed to connect their remote site to the world

The Atacama Large Millimeter/submillimeter Array (ALMA) observatory needed to relay massive amounts of data generated by the telescope to scientists probing the mysteries of the universe from one of the most remote locations on the planet.

How a network provides the backbone for scientific discovery

The managed network provided to ALMA delivered a 24/7 connection between the telescope and the world's scientific community. This was achieved through a virtualization solution using Cisco switches with virtual routing and LAN capabilities.

What a high-availability, high-speed network means for ALMA

The infrastructure managed for ALMA ensures that the data is available 24/7 and as the demand for access grows so does the partnership between NTT and ALMA.

'We're making a huge effort to unveil the mysteries of the universe, and you'll never know what you might find. Our goal is to provide the best data possible back to the scientific community and NTT helped us to achieve our goal.'

Cristóbel Achermann – IT Project Manager, ALMA

Challenge

Why ALMA needed to connect their remote site to the world

ALMA is one of the most powerful scientific instruments in the world. However, the nature of the radio waves the telescope receives, requires it to be located at altitude in the dry air of the Atacama Desert in Chile.

Located 5,000m above sea level, the thin air makes it hard for people to work at the Array Operations Site on a continual basis.

To cater for this, an Operations Support Facility is located 2,000m lower, yet 30km away from the main array.

The facilities are connected via a high-speed fiber connection, while the Operations Support Facility is connected to ALMA's Santiago Central Office. The entire network delivers huge quantities of data generated by the observatory, to scientists across the world for analysis. With only a small IT team, this harsh environment creates a unique set of challenges.

Solution

How a network provides the backbone for scientific discovery

We deployed a managed network to ALMA, delivering 24/7 connectivity between the telescope and the world's scientific community.

With a small IT team, ALMA doesn't have the capability to manage such a large-scale network. So, we implemented a virtualization solution, using Cisco switches, with virtual routing and LAN capabilities. This provides ALMA with a fully-managed service.

Beyond the operations center, the network plays a critical role in supporting the work being done at the support center in Santiago.

Outcome

What a high-availability, high-speed network means for ALMA

The infrastructure managed for ALMA ensures data is available 24/7. As the demand for access grows, so does the partnership between ALMA and NTT.

ALMA is the benchmark in the next wave of networking and big data. The works completed on this project gives scientists reliable access to this scarce resource.

The operations center runs a fully virtualized network connecting the different sites. It powers the data center, consisting of 102 Cisco UCS blade servers in 12 chassis, all managed by NTT.

The partnership has strengthened further over the last seven years.

The ALMA team relies on us to assist in planning for future upgrades and continuing growth in storage requirements.

Which technologies? • Cisco (switching)

Which services? • Technical Services
• Managed Network Services
• Cybersecurity
• Intelligent Infrastructure

Which partners? • Cisco