

Case Study ›

PROJECT OVERVIEW

- APSEZ is India's first port-based multi-product Special Economic Zone
- 10 GBPS fibre backbone
- 100km of fibre cable linking 25 locations
- 1500 nodes over an area of 100,000 sqm
- ModLink solution deployed at select areas

Adani Ports and SEZ, Gujarat-India

Mundra Port or APSEZ-Mundra, India's largest private port and special economic zone on the west coast of India, provides cargo handling and other value-added port services. A Special Economic Zone (SEZ) is a geographical region that is designed to export goods and provide employment. SEZs are exempt from federal laws regarding taxes, quotas, FDI-bans, labour laws and other restrictive laws in order to make the goods manufactured in the SEZ at a globally competitive price.

Introduction

APSEZ-Mundra was built in 1995, with a basic infrastructure utilising Molex solutions including the fibre range of products. In 1998 the port commenced operations with a single berth and, following the recent expansion and commissioning of the Data Centre, now stands on the threshold of being the largest commercial port in India. APSEZ-Mundra is India's first port-based multi-product Special Economic Zone, and not only pioneered the concept of deep draft integrated port model, but also of port based SEZ themselves. The Port is responsible for providing detailed information on schedules, tariffs, trade notices, weather and tidal information. The port has a robust IT infrastructure which is equipped with state-of-the-art safety and security measures and infrastructure to ensure and protect storage. Positioned on the west coast of India, APSEZ-Mundra is ideally situated for exports to African, Middle Eastern and Western countries yet is conveniently located to service northern and northwestern India.

The site is a barren area where climatic conditions are extreme and water is scarce and although it is on the coast, the terrain is treacherous and isolated. The multi-purpose port was strategically developed in an area where agriculture was not possible, but is accessible by sea to the oil producing nations in the Persian Gulf. The development of this port was instrumental in creating the Special Economic Zone which thrives in the service sector of port operations. Leveraging the location of the Port, APSEZ-Mundra is being developed over an area exceeding 100 sq km as a privately operated and diversified Special Economic Zone, approved by the Government of India. In turn this will provide world class infrastructure for those who want to establish businesses here.

The Project

The site consists of 3 large complexes; Adani House, Adani Power and the APSEZ-Mundra. They are spread across a campus of 100 sq km's and are linked with a Molex fibre backbone equating to 30km. Further, LAN cabling was required within the 3 complexes for the users, along with cabling for the Data Centre within Adani House. To operate a Port on this scale meant that reliable connectivity was crucial to track and handle containers, with little or no downtime. As all the processes were online, the network upgrade had to be conducted without disrupting the



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existing operations.

The key factors considered by APSEZ-Mundra for the project were providing connectivity for the 3 complexes, perimeter monitoring (CCTV) and upgrading the Data Centre which required state of the art high speed connectivity between the devices. Therefore a redundant and fail proof system had to be developed, and the cabling system had to be scalable to address future expansion plans.

Why Molex?

A Molex solution was chosen through a detailed technical qualification process and ability to execute such a large and complex project as per schedule. The solution deployed provided a resilient network supported by 10 GBPS fibre backbone, starting from the Data Centre in the Adani House running through 5 separate major network distribution hubs in a full ring topology, spread across the three main complexes.

Approximately 30 VLANs were employed to manage data, voice and video traffic effectively, with more than 100km of fibre cable running across the campus linking 25 locations to the Data Centre. Singlemode fibre was used in the campus, with Multimode deployed for in-building distribution. There are 1500 nodes linked across the campus, over an area of 100,000 sq. mtrs. This meshed and resilient cabling architecture resulted in reducing the Total Cost of Ownership significantly and increased manageability of the setup.

A notable feature of this installation is that Molex's pre-terminated copper Plug and Play solution, ModLink, was deployed at select areas around the campus. The IT team chose and implemented ModLink patch panels for server racks to network racks in the Data Centre.

Challenges

Like all major projects, APSEZ-Mundra had its share of challenges. The remote geographical location made it difficult to recruit and sustain Support staff. The IT Infrastructure team at APSEZ-Mundra needed to deploy, lay and install 30 km of fibre optic cable in outdoor sandy and saline conditions. These outdoor links were critical as they formed the backbone of the campus and were crucial for the smooth running of APSEZ-Mundra. Installation in the Data Centre had to be deployed in 6 racks without affecting the running setup of over 40 critical servers. Cable distribution and termination was to be installed in 6 separate racks where servers were already hosted and in operation. The products had to be robust to withstand harsh external environmental conditions and be of a high standard. In addition, stringent deadlines for implementation had to be adhered to.

The sheer scale of the operations at the port meant complete dependency on IT support. Molex's Plug and Play solution, ModLink, provided the appropriate migration path. APSEZ-Mundra is a highly automated campus, utilising custom built software and equipment, whereby network resiliency has been the key to



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enable continued and uninterrupted access for the end user. Unavailability of network connectivity at MPSEZ would have disrupted daily working of the port, causing significant delays and directly resulting in loss of revenue.

Conclusion

This successful installation has greatly benefitted the operations in this facility, so much so that this project now serves as a benchmark across the group and in this industry. The communication lines have improved with enhanced speed; IP Based 10G for the fibre backbone and 1G for the LAN. This enhanced data link has also rendered efficient connectivity with the other hubs including the corporate headquarters in Ahmedabad, which is approximately 400 km away.

Mr. Rohit Thaker, Network Manager in APSEZ-Mundra says "While designing the network infrastructure, one of the biggest considerations for the team was to ensure maximum future proofing. Re-cabling in a Data Centre when it is fully operational is no mean feat. Therefore we wanted network cabling at APSEZ-Mundra to be as technologically advanced as possible to obtain the highest return on our investment. Hence, it was essential to ensure that our infrastructure design and the associated Structured Cabling System would meet our technological demands and run the duration of its 25 year System Performance and Application Assurance Warranty. At this juncture we chose Molex for their technologically advanced solutions providing speed and performance which we need to support our operations with lowest implementation time."

Mr. Angshuman Chakraborty, Vice president, IT & Communication sums up the project saying that "the Molex Plug and Play solution is equipped with affordable design and specification that gave us the strategic and cost effective solution to maximize our network infrastructure investment over its lifetime. It has met all our requirements for a cost-effective, upgradeable, state-of-the-art network infrastructure to complement our futuristic design and supported our progressive vision"

Molex continues to be involved with APSEZ-Mundra and through consultation with the IT management team, and will be supporting them in the next phase of the development/expansion.



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