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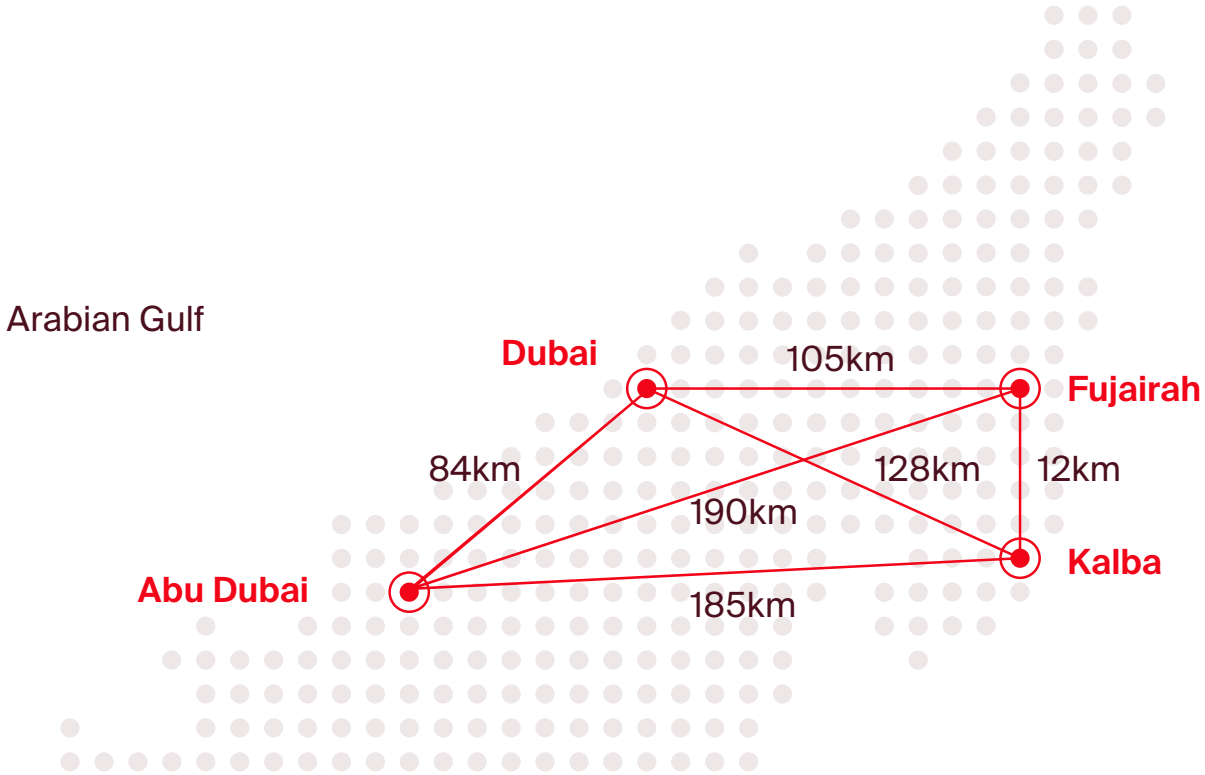
Smart Hub

Abu Dhabi Fact Sheet



With e&'s commitment towards extending the reach to our customers connecting the Middle East, Asia, and Europe, and SmartHub being a reliable, trusted, and a highly connected eco-system, the state-of- the-art Tier III SmartHub expands to Abu Dhabi, Masdar City, to support the entire digital eco-system. Abu Dhabi, capital of the UAE, and recognized as the Financial Hub of the country, commercial epicenter for both domestic and international businesses, making it an ideal strategic location that meets the needs of global consumers while offering geo-redundancy.

SmartHub Abu Dhabi data centre is located in Masdar City and is equidistant from both SmartHub Kalba (185 km) and SmartHub Fujairah (190 km). These distances and locations between facilities position the facility to address customers requirements for geo-redundancy and disaster recovery.

Abu Dhabi's SmartHub fifth facility is data center choice for partners looking to expand their network & geographical globally.

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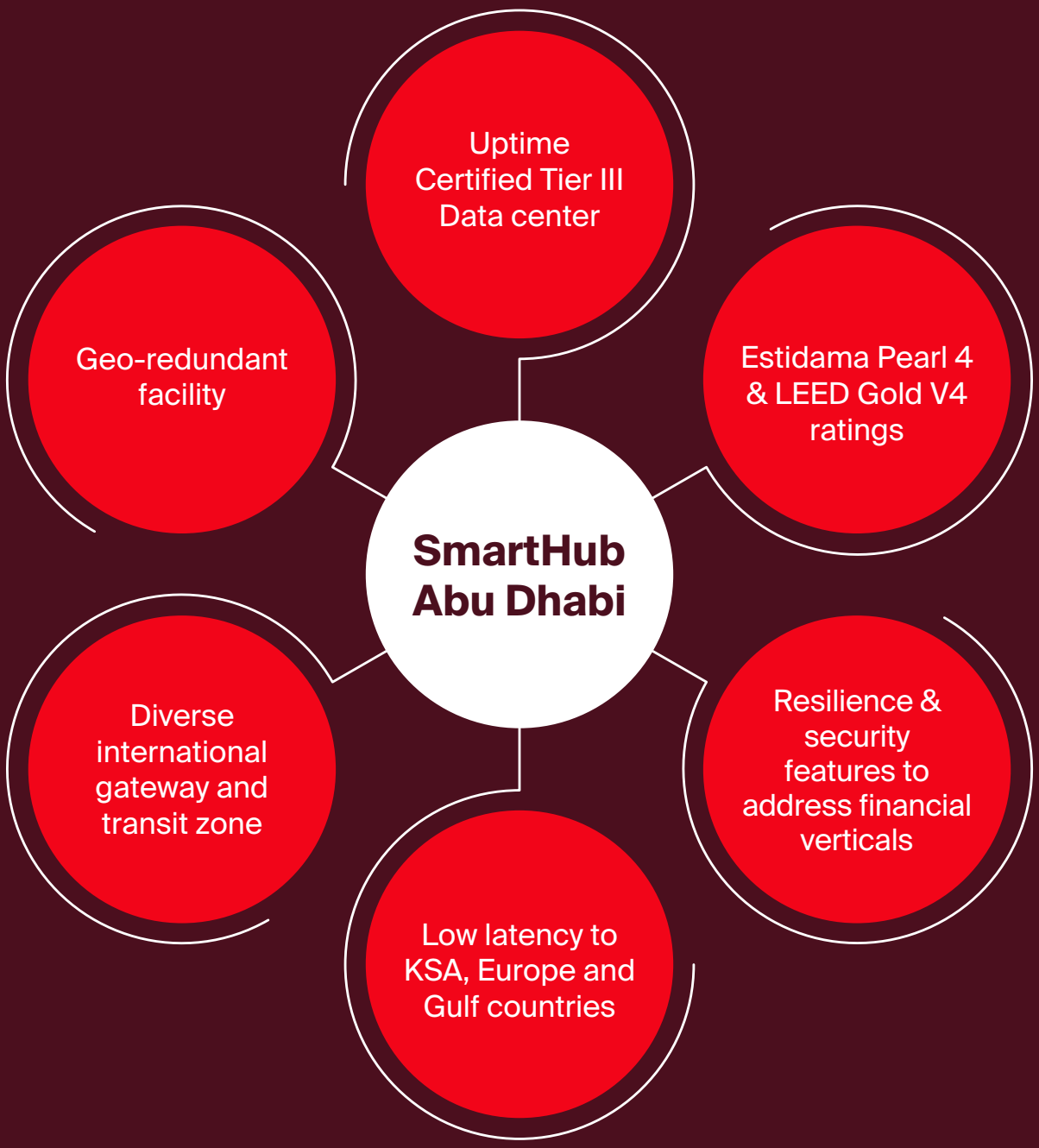
Future Telecom Hub



Electrical Design

UPS

- Double conversion efficiency increased from 97% to 99% with the dynamic online mode
- Compact Vertical Modularity: The stacked drawers in each core can be individually extracted for service purposes while the UPS continues to protect your load
- Footprint for optimum space utilisation
- Vertiv LIFE™ Services remote diagnostic and preventive monitoring service
- Full input Power Factor Correction (PFC) and very low THDi
- Uptime Assurance: Constant monitoring of UPS parameters, thus maximising the system's availability

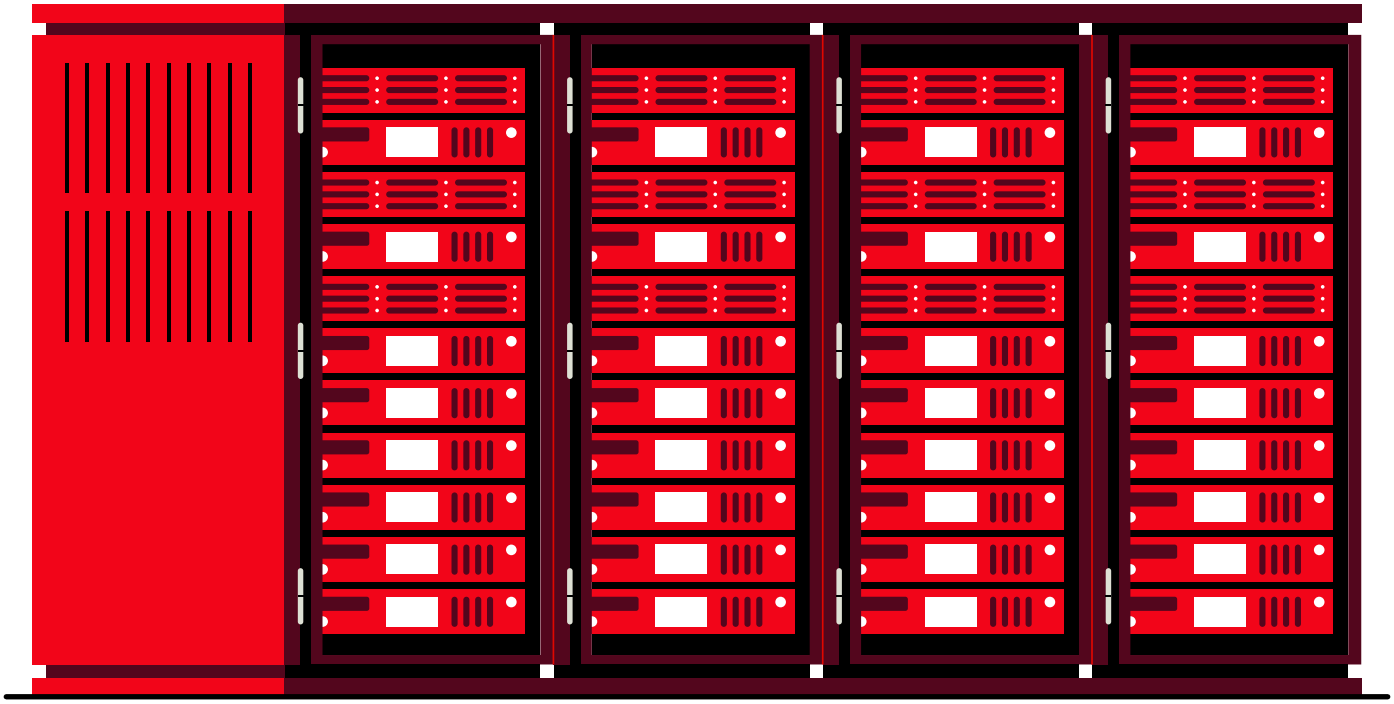
System and Components	Resilience
Utility Power Primary station (22KV)	N + 1 (N-1 from Authority perspective) to the project intake room
Generators	N + 1
LV Power Distribution – Typical POD	N + 1 (5N/4 distributed redundant) – Concurrently Maintainable
LV Power Distribution – Typical Auxiliary	N + 1 (3N/2 distributed redundant) – Concurrently Maintainable
UPS (IT) (Typical POD & Auxiliary Loads)	N + 1
Distribution paths – POD IT Loads	Five Active Power Distribution Paths for typical POD for data halls

Mechanical Design

- Adiabatic water tank sized for 48 hours storage dedicated to phase 1 pods and Tier III compliant
- Piping and pumps N+1 configuration
- Dedicated chilled water system per POD – Primary variable flow system with adiabatic free cooling chillers
  - 5 x chillers with adiabatic free cooling with N+1 redundancy
  - 5 x TES tanks for 10 minutes storage for white space cooling MCHW network
- Separate chiller plant for the auxiliary rooms

Structural Design

- The facility has been designed using precast concrete elements
- Data halls with dimension: 31908 mm x 19058 mm and dimension: 11350 mm × 7200 mm



White space

- Total IT space: 612m^2
- 1MW scalable to higher capacity
- Number of IT halls dedicated for SmartHub: 1 data hall
- Cabinets count: 200 racks

Rack size:

- 600 × 1200 mm 42 U racks
- Flexibility - Provision for hosting customisable racks

Rack clearance:

- The minimum rack front clearance: 190 cm
- The minimum rack rear clearance: 120 cm

Loading bays:

- Loading/unloading bay convenient for receiving equipment packages from trucks
- Cargo lift available

Emergency exits

- 8 emergency exits in the facility

Power

- 1 MW IT capacity dry type transformers N+1 (5N/4 utility string arrangement for each pod)
- Redundancy: N+1, Tier III standards

Diesel generator:

- Generator backup: Dedicated generators available for each MDB to cater full load
- Minimum capacity components to support the IT load Uptime Tier III (N+1)
- Concurrently maintainable
- Bulk load acceptance: 100%

Generator capacity

Total capacity:

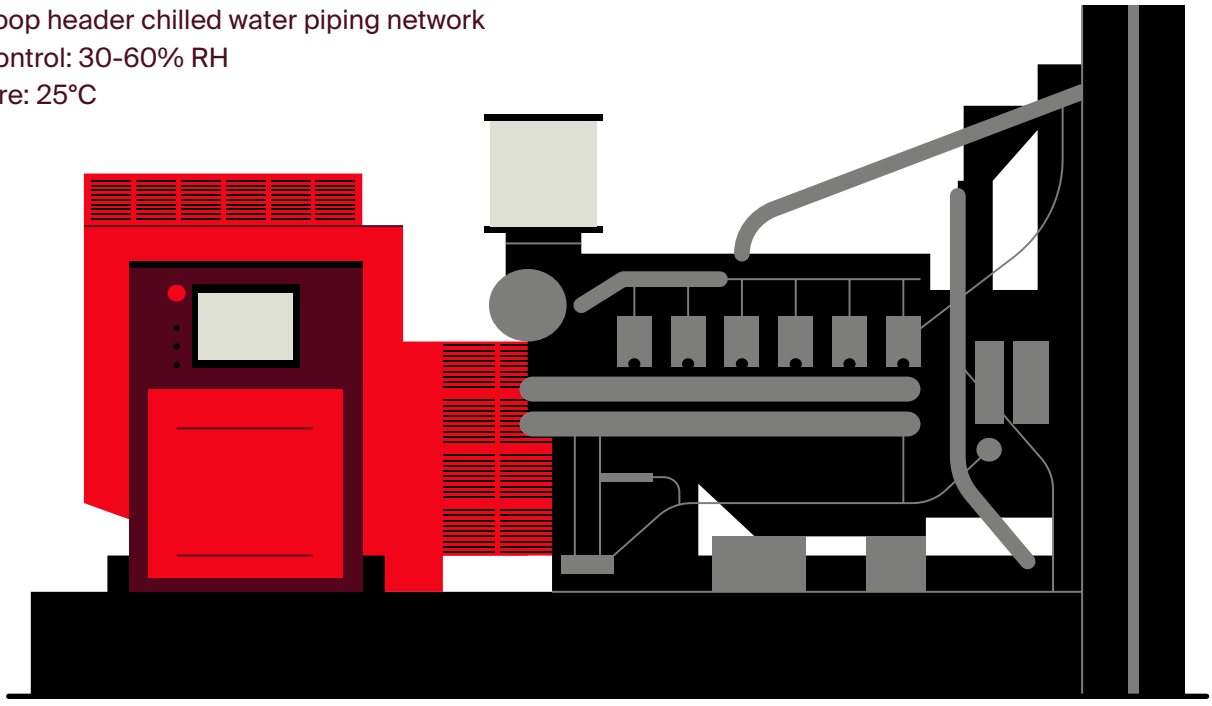
- 30 x 2750 KVA (2200 kWe) IP55 Enclosed MTU Diesel Generator Sets
- 03 x 2500 KVA (2000 kWe) IP55 Enclosed MTU Diesel Generator Sets

Fuel storage:

- 48 hours continuous operation at full load
- Automatic fuel transfer system

Cooling and environment:

- Total cooling capacity: 6.036 MW cooling for 5 MW IT POD
- Emergency cooling backup: 5 min thermal storage tanks
- Chillers: N+1 (5N/4 string arrangement for each pod)
- CRAH redundancy: FWU N+2
- Feeders: Loop header chilled water piping network
- Humidity control: 30-60% RH
- Temperature: 25°C



Network and connectivity

- Redundant points of entry are located at the East and West of the building
- Fully diverse network distribution between the MMR/data halls/Aux rooms

Carrier-Neutral Meet Me Room

- 4 dedicated entry rooms from the point of entry for individual ISPs
- 2 redundant MMR rooms indicated as East and West with connectivity from ER rooms

Security

Building management systems

- 24×7 site accessibility with facilities designed for handling large/heavy equipment
- Fully integrated BMS solution with separate workstations for BMS and EPMS
- Full redundancy on the hardware, network and power
- Below systems are integrated with BMS/EMS
  - HVAC
  - All electrical distribution
  - Environmental monitoring
  - Chiller plant manager
  - Water/fuel leak detection
  - Fire alarm system
  - Firefighting system
  - Fuel system

Monitoring & access control:

- CCTV:
  - IP based CCTV cameras
  - 180 days of continuous camera recordings
  - Full facility coverage including entrances, exit, external area, critical rooms, corridors etc
  - Dedicated ANPR system provided at facility entrance
  - Integrated with access control system

- Access Control System:
  - Fully redundancy on the server arrangement (Hardware)
  - Dedicated reader interface for individual doors.
  - 4 hours dedicated power back up on utility failure
  - Dual authentication for critical room access (Biometric + card)
  - All facility doors installed with ACS control/monitoring
  - Perimeter entrances installed with physical security equipment (Crash rated hydraulic bollards, Gate barriers, Bi-Folding gates and sliding gates)
  - Screening systems provided at facility entrances (X-ray, Walk through metal detector and UVSS)

Fire protection

- High pressure water mist system
- Inert gas 541 system
- Foam system
- Pre-action system
- Wet riser/standpipe system
- Hydrant system
- Portable fire extinguishers

Customer experience

- 24×7×365 on-site SmartHub support team available
- Customer hot seats
- Lounge access, meeting rooms and recreational facility

Certificates & Standards

- Uptime Institute certified Tier III design & operational
- ISAE3402 Type II
- ISO/IEC 22301
- ISO/IEC 27001

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In a market that is constantly evolving, Etisalat Group is an operator with a vision of “driving the digital future to empower societies”. The Group aims to provide best-in-class, total customer experience both domestically and internationally, thus supporting economic development across operating markets. Etisalat Group has been named “The Most Valuable Portfolio Brand” in the Middle East and North Africa (MENA) by Brand Finance and has become the first group from the region to break the USD 10 billion barrier in terms of wider portfolio value.

With a comprehensive portfolio of innovative and flexible solutions for wholesalers and OTTs worldwide, Etisalat C & WS is a global solution-provider for services in Data, Mobile, Voice and Satellite. Connecting with them guarantees a provider that supports universal communication requirements and access to the incomparable scale and reach of their network. Furthermore, they offer a global infrastructure through invested submarine cables, D.C.s with regional presence in Asia, MENA and Europe.