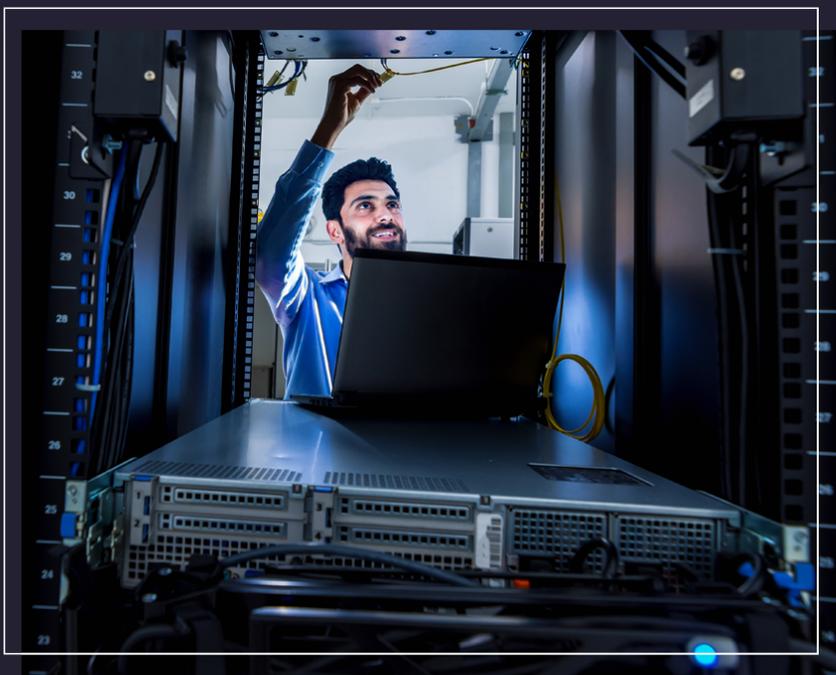


# DATA CENTERS

DESIGN – BUILD – OPERATE



- Tier 3 and Tier 4 Data Centers with SLAs of 99.982% and 99.995%
- Networks, Systems and Storage Engineering and Management
- Cloud Computing and Storage
- Data Center Infrastructure Management (DCIM)
- Facility Maintenance

# Data Centers

ICS Arabia is a leader in EPC and O&M of highly reliable, scalable, redundant, secure and robust facilities.



## Turnkey Delivery

We offer design-build services for timely and within budget delivery

## ATD Certified Engineers

Expertise in all Uptime tiering levels for Data Centers Design, Construction and Sustainable Operations

## Leading Contractor in KSA

First indigenous KSA company to build Tier III+ certified data centers and design IP

## BIM Design and Modeling

Engineering for improved efficiency, highest safety and security, and fault-tolerant facilities

## Data Centers Automation

Expertise in building automation specific to critical system and equipment

## Operations and Maintenance

DC Infrastructure management and facility maintenance to reduce costs and improve performance

## In-house Expertise

ICS Arabia in-house certified engineers assure data centers are designed for the optimal efficiency, interruptible power supplies, redundancy for ventilation and cooling systems, and they comply to the strictest fire safety ratings and security requirements



## Featured Technology Partners

We partner with industry leading technology developers and OEMs to ensure the highest quality and reliability of Data Centers performance. Our partners include:



# Data Centers Automation

- Optimizing data centers for maximized return on investment
- Increasing security and safety for uninterrupted operations
- Energy preservation for operational cost savings
- Redundancy and predictive maintenance to sustain uptime availability



Turnkey Delivery for Cost-Effective and Reliable Data Centers



DESIGN



BUILD



COMMISSION



MANAGE

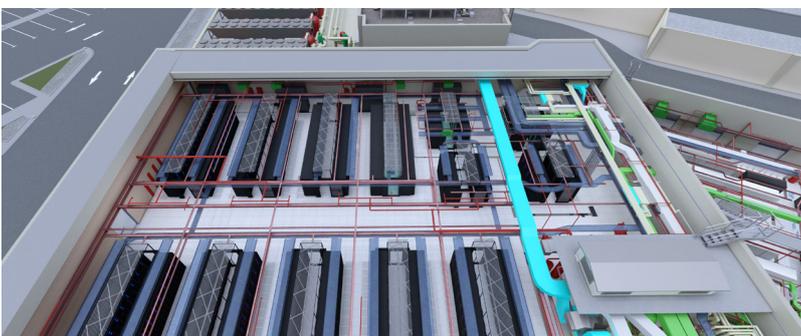


## Design and Engineering

ICS deploys a rigorous interdisciplinary approach to planning and designing complex buildings and structures. Our innovative thinking and expertise, in multiple fields, allow for integrated solutions that achieve improved building and infrastructure efficiency, while implementing architecturally iconic designs. With the help of BIM, we optimize buildings' constructability and, physical design of spaces, and mitigate unforeseeable future challenges. We enable our clients to see their project as a whole before construction begins.

### Services

- ◆ Civil Structural Engineering
- ◆ MEP Engineering
- ◆ FLS Systems Engineering
- ◆ Lighting Design
- ◆ Automation and Controls Systems
- ◆ Energy Management Systems
- ◆ Lifecycle Cost and ROI Analysis
- ◆ SBC/IBC/HCIS AHJ Compliant Design Documentation, Reporting and Compliances



### BIM Design and Modeling

ICS Arabia integrated approach to MEPF system coordination gives early insight into critical design data in real-time scenarios that helps to improve project performance. BIM technology allows locating critical system components in congested spaces not just to avoid obstructions but also to meet design, construction, and operational requirements.

#### Benefits:

- ◆ Construction timetable optimization
- ◆ Conflict detection in the early stages of a project
- ◆ Cost reduction and precise cost estimation/ Bill of materials systems Interoperability and design adaptability
- ◆ Workflow integration
- ◆ A great degree of adaptability and customization
- ◆ Risk minimization
- ◆ Effective building performance analysis
- ◆ Efficient maintenance and improved lifecycle management



## Construction and Capital Projects

ICS Arabia's construction capabilities are built on experience delivering turnkey solutions for our clients' mission critical requirements during the advent of smart buildings and digital modernization. Our seasoned team of in-house designers, engineers and construction managers are based out of the MENA region, and we offer reach back to over 2000 skilled operators and workforce. Our project managers are experienced in multi-phase/multi-site programs, and we follow the highest international quality standards and local codes.



### Services

- ◆ Pre-Construction (Planning, Budgeting, etc.)
- ◆ Site Evaluation/Constructability Studies
- ◆ Project/Program Management
- ◆ Master Schedule/Schedule Controls
- ◆ Procurement and Supplier Management
- ◆ Contract Management
- ◆ Safety Management
- ◆ Progress Analysis and Reporting
- ◆ Fitout and Finishing with Commissioning
- ◆ Snag and Handover

### Contracting Method

Delivery method selection is a critical, early-stage decision that impacts project costs, timeframes, owner control, and mitigation of risk. Clients have multiple delivery methods to choose from, and while traditional delivery systems may feature their own advantages and disadvantages, the experienced ICS Arabia team designs the best suited solution for the project's requirements.

### Main contracting methods:

- ◆ Design-Build
- ◆ General Contractor/Main Contracting
- ◆ Project Manager Contractor
- ◆ EPC/CMAR



## IT Engineering

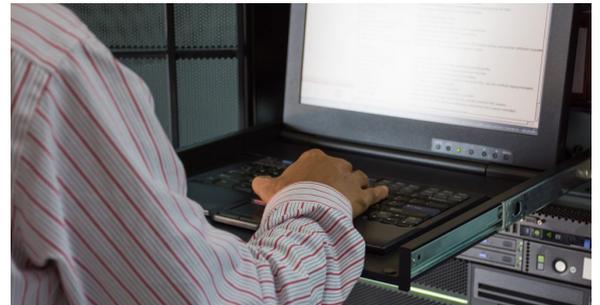
We assess data center requirements, and design infrastructure architecture that optimally integrates compute, storage, networking, virtualization and software components. Our solutions help to lower compatibility issues, improve operational efficiency and reduce costs for power, floor space, cooling, and cabling.

### Virtualization

#### ■ Software-defined Data Center (SDDC) Architectures:

- ◆ Server Virtualization
- ◆ Storage Virtualization and Availability
- ◆ Network and Security Virtualization
- ◆ Cloud Apps Virtualization
- ◆ Desktop Virtualization

#### ■ Virtualization for Multi-site Data Center



### Networks

#### ■ Highly Optimized Network:

- ◆ Upgraded routing and switching equipment
- ◆ Application Delivery Controllers (ADCs)
- ◆ Caching, compression, deduplication and
- ◆ QoS capabilities

#### ■ Assessment:

- ◆ WAN acceleration assessments
- ◆ Network health checks and data network roadmaps

#### ■ Network Flexibility and Scalability



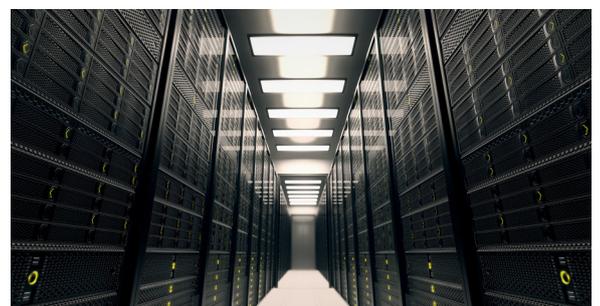
### Storage and Back-ups

#### ■ Storage Services:

- ◆ Storage Area Networks (SANs)
- ◆ Network Attached Storage (NAS)
- ◆ Direct-Attached Storage (DAS)
- ◆ Flash storage
- ◆ Hierarchical storage management
- ◆ Cloud storage

#### ■ Back-up and Recovery:

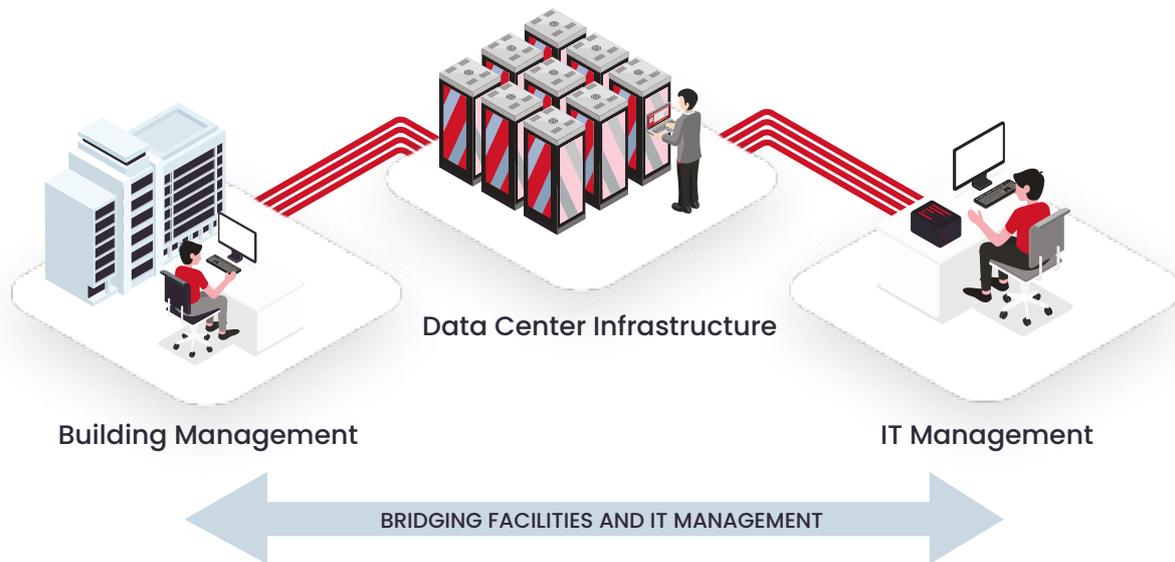
- ◆ Cloud backup
- ◆ Centralized data management
- ◆ Data deduplication
- ◆ Multi-data-center replication
- ◆ Automated and streamlined backup process





# Data Centers Management and Operations

The demand for services, environmental complexity and criticality of availability is at an all-time high. Add to those factors, a constant pressure to control costs, and it is easy to understand why businesses are rethinking how they run the data center.



## Our Services

| DC Infrastructure   | DC Operations   | Hard Facility Maintenance Services   | Soft Facility Maintenance Services  |
|---|---|--|---|
| <ul style="list-style-type: none"> <li>♦ Servers</li> <li>♦ Storage</li> <li>♦ Networks</li> <li>♦ Cybersecurity</li> </ul> | <ul style="list-style-type: none"> <li>♦ Automation</li> <li>♦ Monitoring &amp; Alerting</li> <li>♦ Reporting</li> <li>♦ Remediation</li> <li>♦ Troubleshooting</li> <li>♦ Patch, Platform &amp; Performance Management</li> <li>♦ Cost Optimization</li> </ul> | <ul style="list-style-type: none"> <li>♦ HVAC</li> <li>♦ Electrical</li> <li>♦ Plumbing</li> <li>♦ Preventative Maintenance</li> <li>♦ Capital Improvements</li> <li>♦ Planning, Extension/Upgrades</li> </ul> | <ul style="list-style-type: none"> <li>♦ Security</li> <li>♦ Waste Management</li> <li>♦ EHS</li> <li>♦ Grounds Keeping</li> <li>♦ Regulatory Compliance</li> <li>♦ Catering</li> </ul> |



## Increasing Security and Safety for Undisrupted Operations



### Fire Detection and Suppression

Requirement for Fire safety in data centers are extremely strict that requires specialty expertise and skill for engineering. ICS Arabia utilizes the latest technology for early fire detection (VESDA), automated clean agent fire extinguishing systems, automated climate and relative humidity control using precision equipment.



### Security and Surveillance

With experience delivering turnkey solutions for the highest security requirement government data centers, ICS Arabia is leading ELV systems provider in the KSA. Our solutions include CCTV systems, scanning, access control, e-fencing and physical security elements with custom-designed integration solutions.



### Structure and Containment

Data centers structure, floors and containment provides a foundation for the stability of equipment, cables and technology installed in the facility. ICS Arabia ensures building reinforced concrete structure compliant with the current earthquake regulations and other requirements.

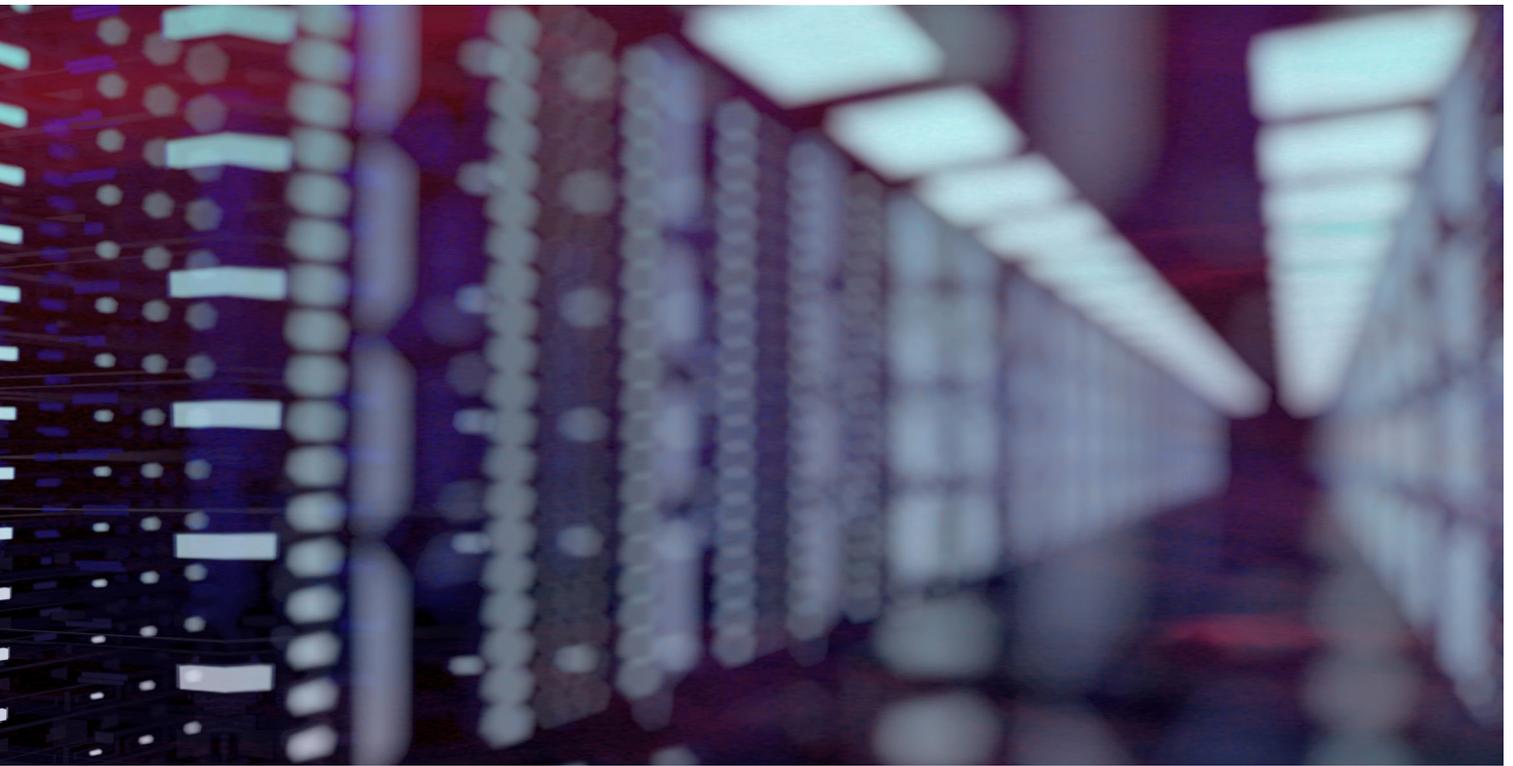


### Power Redundancy

Most of our clients' mission-critical operations are reliant on cloud, edge computing and big data, that raises the most stringent requirements for data center redundancy and reliability. Physical power infrastructure and uninterrupted power supply plays a critical role assuring continuous operations.

#### ICS Arabia Solutions:

- ◆ UPS procurement, installation and commissioning for ultra-high availability and efficiency for any size data center or high density power zone
- ◆ Continuous-Power Generators to serve the required IT load and supporting facilities in N+N configuration and underground fuel storage for 72 hours of continuous operations at full load
- ◆ Power Distribution Units design and installation



# Optimizing Data Centers for Maximized Return on Investment



## Integrated Design Approach

ICS Arabia approach to design encompass integration of structural, MEP, Fire Safety and ICT/ELV solution. We utilize BIM technology for error-free system interoperability, scalability and at most safety.



## Performance and Compliance

Our certified engineers are expert in Uptime Tier certification and ensure data center compliance to selected tier performance. We also follow TIA and BICSI best-practices, and ensure compliance to NFPA, Civil Defense and other relevant codes.



## Energy Efficiency and Cooling

Key concern for any data center is its operational cost reduction. ICS Arabia engineers achieve tremendous saving for our clients through optimization of cooling systems, free cooling, aisle containment and defining the right design for computer room air conditioning (CRAC).



## DCIM, EMS/PMS, SCADA

ICS Arabia provides clients with customized software solutions for data centers infrastructure and operations management. This technology allows facility managers to have a complete insight and control over their data center's daily operations, capacity planning, energy management, predictive maintenance and sustain undistributed operations.

### Benefits:

- ◆ Capacity Planning
- ◆ IT Optimization
- ◆ Workflow Integration
- ◆ Metering/Energy Efficiency
- ◆ Real-time Data Analytics
- ◆ Preventative Maintenance
- ◆ Mobile Apps
- ◆ Customized Dashboards

## Featured Projects

### Design-Build

#### SFMC: Tier III+ Data Center and Operations Center

ICS Arabia is currently in the process of completing two design-build state-of-the-art Data Centers and 24/7 Hospital Operations Center with office facilities for 400+ resident engineers and Executive Leadership.



### Project Details

|                       |  |               |            |
|-----------------------|--|---------------|------------|
| <b>Location</b>       | Riyadh and Jeddah  | <b>Client</b> | Mol - SFMC |
| <b>Technical Info</b> | <ul style="list-style-type: none"> <li>8,937 sq. m. Buildout Area</li> <li>500 Communication Racks</li> <li>102 Km Fiber Cable</li> <li>1,900 Network Switches</li> <li>99.982% Min. Availability</li> </ul> | <b>Status</b> | On-going   |



### Design-Build-Operate

#### United Integrated Program (UIP): Tier III+ Data Center and EOC

ICS Arabia was contracted for turnkey delivery Tier III Data Center and 24/7 Enterprise Operations Center (EOC). 12,000+ servers and 100+ Technical Resources were Integrated for Cyber Security and other Intelligence Operations



### Project Details

|                       |  |               |                            |
|-----------------------|--|---------------|----------------------------|
| <b>Location</b>       | Jeddah   | <b>Client</b> | Mol - UIP                  |
| <b>Technical Info</b> | <ul style="list-style-type: none"> <li>7,421 sq. m. Buildout Area</li> <li>463 Communication Racks</li> <li>102 Km Fiber Cable</li> <li>1000+ Security Cameras</li> <li>99.982% Min. Availability</li> </ul> | <b>Status</b> | Delivered (O&M - On-going) |

## Meet Expert Team



**Khanh Hosi**  
EVP, Capital Projects



**Ken Blount**  
EVP, Contracts/Risk



**Ahmad Mansoor**  
Construction Manager



**Mohammad Ali**  
Building Automation Technology



**Essam Refaat**  
Passive Technologies

## Contact Us

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