

Data Archiving

GGSC – German Group for Services & Consultancy
Frankfurt/Germany

Hussain Suliman (Chairman & CEO)

Prof. Dr.-Eng. Hans Georg Reinke Senior Consultant & CEO (Team-Leader – „Reconstruction of Sudan after war“)

Cem Güler (CIO – Chief Information Officer)

The Group

- **Founded 30 years ago and has grown from a small local set up to an international firm**
- **Operating in African, Arabian, Asian & European Markets**
- **Head Office in Frankfurt Germany**
- **Offices: Dubai/UAE, Khartoum/Sudan, İzmir/Turkey, Doha/Qatar, Sierra Leone and Chennai/India**
- **Joint Ventures:**
 - **German HealthCare: Medical IT & Technology**
 - **medasol Germany: Bio Medical & Hospital Operation Management**
 - **getucon Germany: Technology Consultancy**
- **Thanks its end-to-end work approach and world-wide partnership ecosystem, GGSC completed diverse projects in different industries**



James Sanpha Koroma
(Owner of UTB Bank
Sierra Leone)

Mr. Suliman
(Chairman & CEO)

Prof. Reinke
(Senior Consultant & CEO /
Team-Leader – „Reconstruction
of Sudan after war)

Cem Güler
(CIO)

Chairman Mr. Hussain Suliman

- Mr. Hussain Suliman is Chairman of the German Group for Services and Consulting "GGSC" and has 35 years of international business experience and strong relationships in a different field and sector with manufacturing companies and corporations as well as government institutions, chamber of commerce – Frankfurt/Germany (IHK) and decision makers worldwide.
- **GGSC German Group for Services & Consultancy** is a Group comprises several limited companies. It is registered in Frankfurt/M, Germany under the German Law.

GGSC, GICT, AEM (Dubai), GGSC Competence (India), GGSC WSI International (Sudan), German Qatari Group (Qatar), getucon (Turkey) the Group has grown substantially from a small set up to international companies during thirty five (35) years old.



Mr. Suliman – Headquarter in Germany Frankfurt

Prof. Dr. Hans Georg Reinke

- **Senior Consultant & CEO – Team-Leader**
- **Prof. of Structural Engineering Frankfurt University of Applied Sciences**
- **Partner of More than 35 years of professional Werner Sobek Engineering Frankfurt**
- **International experience in Engineering**



Prof. Hans Reinke

Curriculum Vitae

1952	Born in Frankfurt/Germany
1972 – 1977	Civil engineering studies at the University of Karlsruhe/Germany and University of Stuttgart/Germany
1977 – 1979	Employee in the engineering office BGS, Frankfurt/Germany
1979 – 1984	post-graduate fellow of Prof. Dr.-Ing. Jörg Schlaich at the Institute for Concrete Construction of the University of Stuttgart/Germany
1984 – 1990	Senior Engineer in the office of Harries & Kinkel, Neu-Isenburg/Germany
1986	PhD in civil engineering at the University of Stuttgart/Germany
1991 – 2001	Partner in the office of Hock & Reinke, Haibach/Germany
since 1991	Professor at Frankfurt University of Applied Sciences, Frankfurt/Germany
1993 - 2022	Proof engineer for structures and materials
1996 - 2022	Proof engineer of the national railway authority
since 2001	Senior Consultant & CEO
since 2005	Shareholder GGSC WSI International & Team Leader Sudan: Infrastructure Projects in Khatoum State (21 Intersections)
since 2023	Team-Leader – „Reconstruction of Sudan after war“

Cem Güler

- Chief Information Officer (CIO)
- 15 years of experience in Technology Consultancy
- Extensive experience as Team-Leader in Project Management
- International experience in Requirements Engineering & Delivery Management



Cem Güler - Chief Information Officer (CIO)

Profile	
Activity	CIO / Senior Consultant for Datacenter Solutions
Range of applications	Project management, business analyst, product owner, scrum master, business process analysis, modeling and reengineering, requirements analysis, robotic process automation (RPA), innovation management, EU tenders, IT outsourcing, sourcing strategy, tenders, contract negotiation, transition, transformation, cloud, IT Infrastructure, AWS, Presentation and communication, Strategic planning, Business development, Design Thinking

Brief portrait
Extensive experience as a project manager, requirements engineer and delivery manager in classic and agile Datacenter, Digitalization and Data Archiving projects, cloud, IT & Telecommunication

Knowledge	
Industry knowledge	<ul style="list-style-type: none"> • Ministries • Banks • Chemie • Logistics and forwarding • Airports • E-Commerce • Education • IT & Telecommunication
Technical knowledge	Cloud, AWS, Azure, firewall, IT security, UCC, VoIP, WAN, VLAN, MPLS, DWDM, dark fiber, data center management, backup & disaster recovery
SAP	certified in SAP ERP TERP1 integrated business processes
SAP development	Certified in SAP Development "SAP Fundamentals, ABAP, Web DynPro"

Profile of GGSC

- General Consultant for Ministries (PR - Contacts with German Government, European Authorities, Chamber of Commerce – „IHK“, Banks & Development Institution) and Joint Venture and sole agent for European, Asian and USA Companies.
- General Contractor & Turnkey Projects (Infrastructure, Healthcare, Mining, Oil & Gas, Agriculture, Education, IT, Vocational Training, Digitalization, Datacenter)
- All kinds of Machineries & Equipments
- Digitalization (E-Government)
- Datacenter
- IT-Infrastructure
- Fiber & Network Solutions
- IT-Network Security
- Telecommunication
- Hardware
- Software & Licences
- Project Engineering (Outsourcing)

Profile of GGSC

- Infrastructure: Road, Bridges & Highrise Bulidings
- Health: Hospitals
- Education
- Information Technology: Digitalization & E-Goverment, Datacenter & Telecommunications
- Energy & Renewable Energy
- Mining
- Agriculture
- Livestock
- Oil & Gas
- Banking Systeme & Training
- Finance

Archival Data Storage



German Group for Services & Consultancy

What is Archival Data?

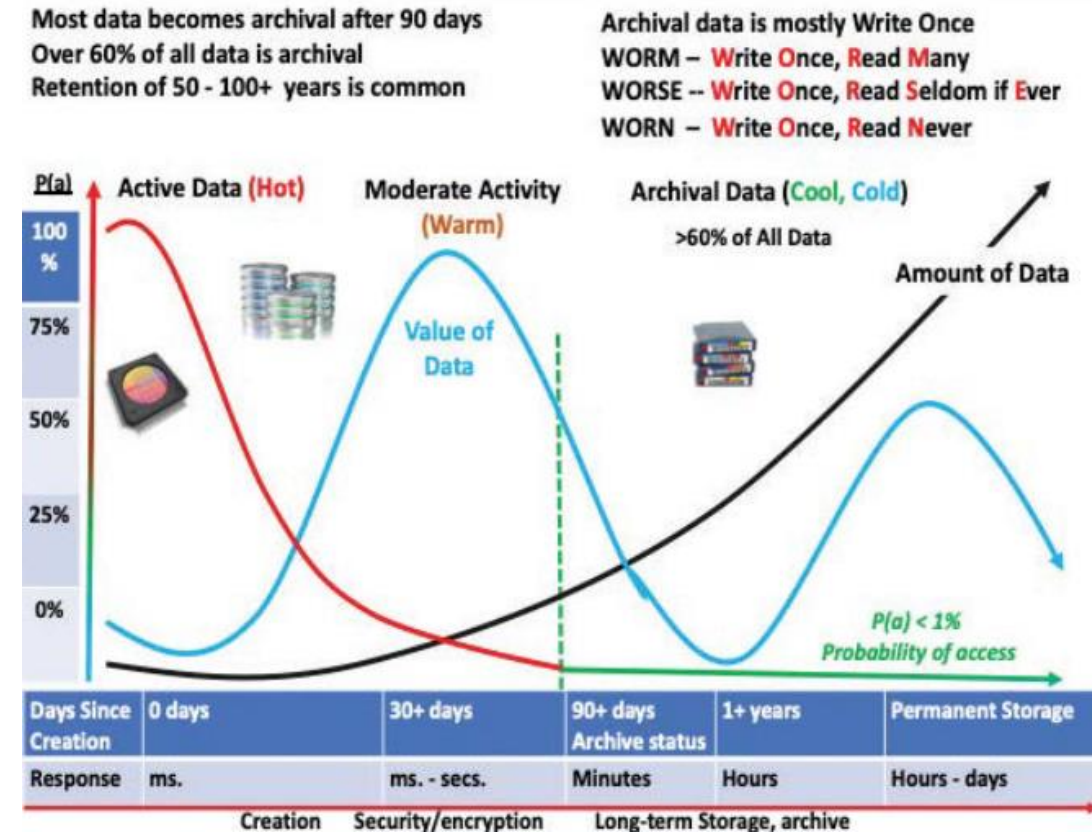
- Moving Data that is no longer frequently accessed off primary system.
- to lower cost storage for long-term retention and protection.
- Archive retention requirements of +100 years
- Including
 - Documents
 - Video
 - Audio
 - Images
 - Anything not in a database

Some facts about Archival Data

- Depending on the business area data typically becomes archival in 90 – 120 Days
- Retention periods of +100 years are common
- Approximately 80% of all data is unstructured and most is archival
- Archive data accumulating faster than it is analyzed
- Archives need to be retrievable metadata and
- Global namespaces enable fast and easier searches

When does data reach archival status?

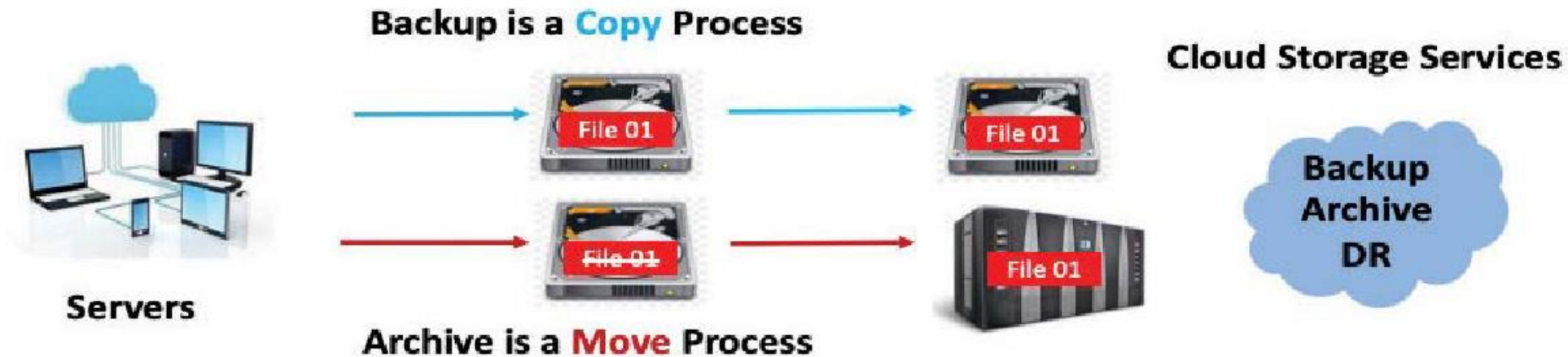
- Archival data continues with being the largest and fastest growing data classification segment.
- Some data becomes archival upon creation and
- wait years for access or
- further analysis adding to the archival pile-up.
- Most cost-effective solutions are tape robotic libraries used in local and cloud.



Difference between Backup & Archive?

- Backup: Process of copy, which may be used to restore the original copy if the original data is damaged, corrupted or after a data loss event.
- Archiving: Process of moving data that is no longer actively used, but is to be required to be retained (read only).

BACKUP AND ARCHIVE ARE DIFFERENT PROCESSES



Difference between Backup & Archive?

BACKUP (Copies Data)	ARCHIVE (Moves Data)	ACTIVE ARCHIVE (Fast Access to Data)
Copies data for protection and recovery. Leaves source data in place.	Moves infrequently used data to more cost-effective storage. Frees up space on source devices.	A combined scalable solution based on intelligent active archive software, tiered media, and/or the cloud.
Restores lost files to desired point in time. Speed is critical factor.	Retrieves files for reference and analysis. Retrieval speed is not a critical factor.	Provides rapid file- or object-level access to archived data.
Short-term duration averages 1-120 days.	Protects permanent and long-term data from modification or deletion.	Protects data and provides efficient data access. Typically operates without manual intervention.

How building an archive strategy?

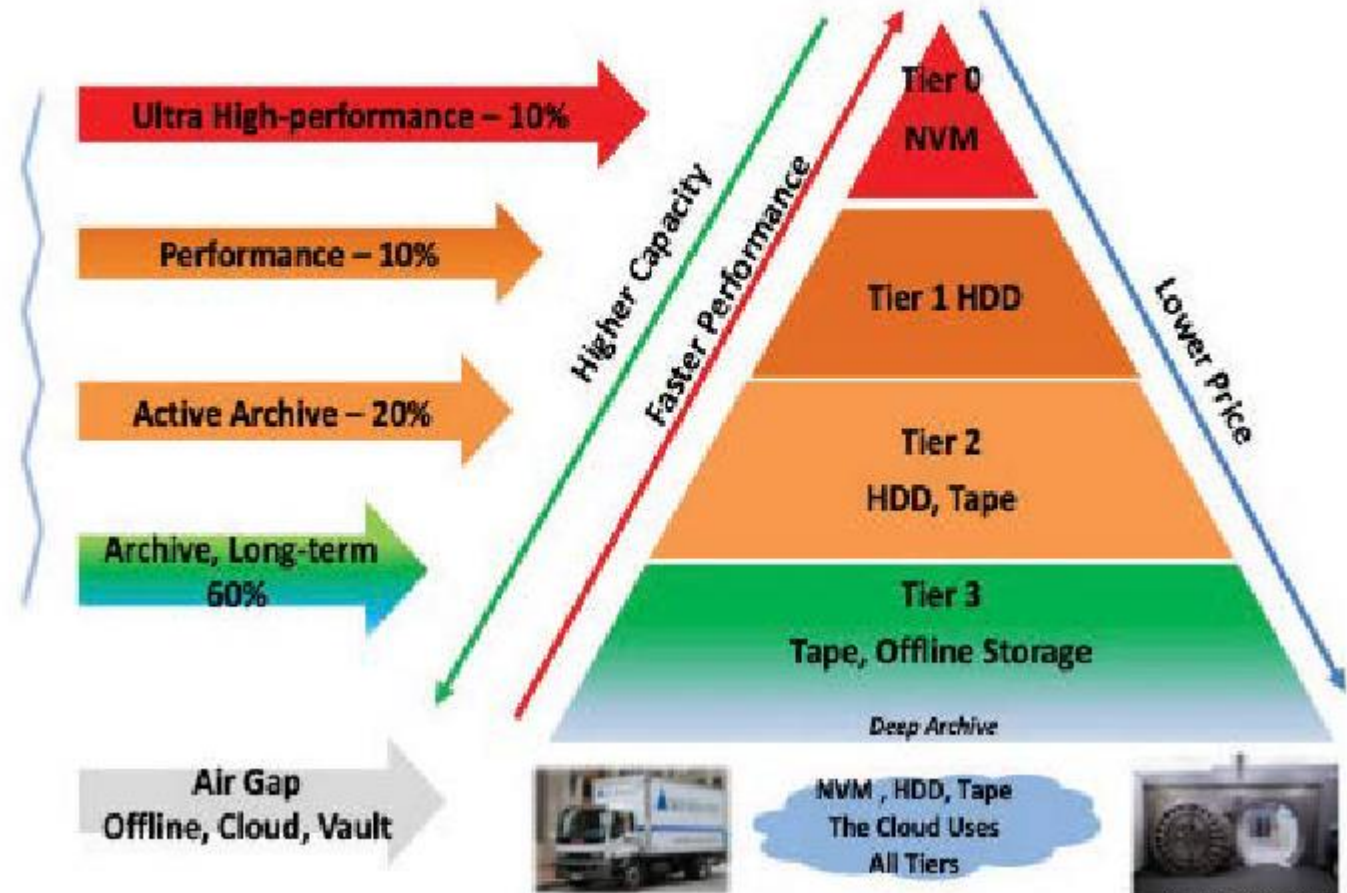
STEPS	ARCHIVE STRATEGY	WHAT IT MEANS
Step 1	Classify	Determine if data is performance critical, mission-critical, business critical, or non-critical
Step 2	Determine	Which data to archive, how many copies needed, define what data needs to be stored for future reference
Step 3	Determine	When to archive data, set archive and security policies, identify last access date, age of data, and frequency of access, assign encryption and worm
Step 4	Choose	Data retention and deletion requirements for archive data - months, years, forever?
Step 5	Select	A software solution to automate and manage the archive process. (A policy-based data mover, HSM software, metadata management, AI software, use global namespaces)
Step 6	Select	The optimal archive storage platform, remote vault, local, hybrid or cloud options
Step 7	Set Rules	For who can access the archives, assign security codes, passwords, forensic lds

Data Classification Guidelines

- Ultra-high-performance data (OLTP)
- Performance Data (Mission critical)
- Active archive (lower activity data)
- Long-term Archive

Data Classification and Storage Tiers

WW Digital Data Classification in 2020



Software for automating the archiving

- IBM
 - DFHSM,
 - Trivoli Storage Mgr. (IBM Spectrum Protect),
 - HPSS
- Fujifilm
 - Fujifilm Data Management Solutions
 - Fujifilm Object Archive Software
- Spectra
 - Storsycle
- Quantum
 - StorNext
- Oracle
 - SAM-QFS
- Veritas (Symantec)
 - NetBackup Storage Migrator
- HPE/SGI
 - HPE DMF (Data Management Framework)
- CA Technologies (Broadcom)
 - CA-Disk
- CommVault
 - Hedvig Software (Replaces Simpana)
- EMC/Dell
 - Seven10 Storfirst (Relplaces EMC Disk Extender)
- Strongbox Data
 - StrongLink
- Varsity
 - Varsity Storage Manager
- other

Difference between Disk and tape?

- Tape industrie continues to innovate and deliver compelling new features
- with lower economics and the highest reliability levels.
- Tape established as the most cost-effective solution for archiving.



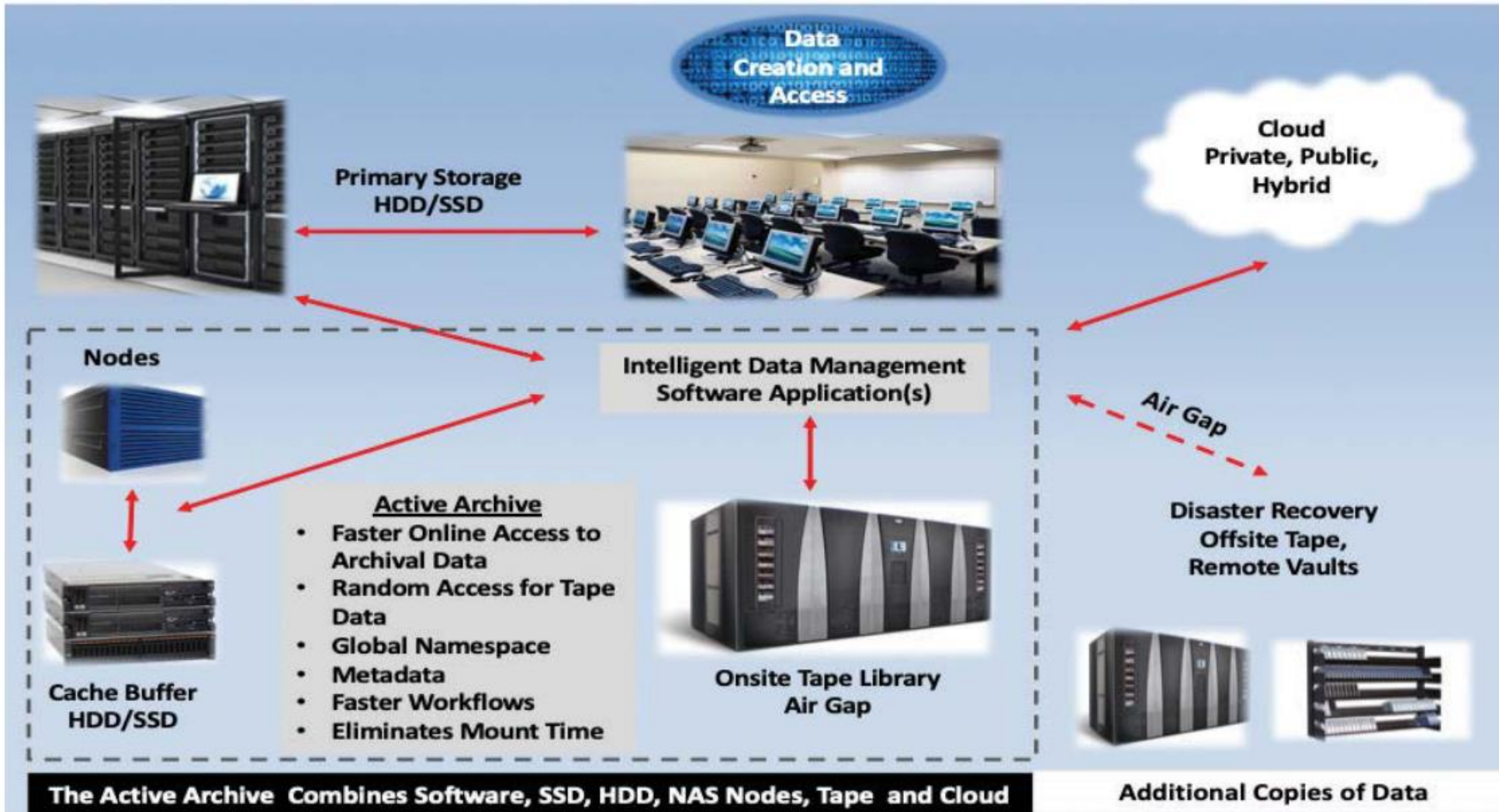
Some specific archive applications & workloads

- Data of Ministeries & Governmental Institutions
- Financial Sectors
(Online banking transaction archives, ATM history, POS, audit logs, and communication logs)
- Health Care and Insurance
(Electronic medical records, images (X-Ray, MRI, CT))
- Insurance
(Long-term accident records and images, health claims, disputes, payment history)
- HPC – High Performance Computing
(Archives feed compute intensive applications for pattern recognition and simulate future consequences and predict outcomes. When the study is complete, the data becomes archival again.)
- Media & Entertainment
(The M&E industry relies heavily on tape and digital archives to provide raw production footage. Most M&E content is never deleted and uses and re-purposes archival content to reach more customers and create new revenue streams.)

Some specific archive applications & workloads

- Online Advertising
(Clickstreams and ad delivery logs access legacy archives for new build sequences.)
- Access Control & Physical Security and Surveillance (CCTV)
(Raw camera footage typically becomes archival after 7 days, surveillance retention periods are quickly increasing.)
- Science / Research / Education
(Archives provide research input and potentially new results, including data for seismic tests for oil & gas exploration, atmospheric science and predictive weather modelling.)
- Sports Archives
(The MLB Network archives over 1.2 million hours of content, which is indexed and stored with infinite retention periods and makes it available to the production team via proxy video.)
- Technology
(Mobile apps, autonomous vehicles, video, RADAR, LIDAR and sensor data generate data much faster than it can be analyzed creating enormous archives for future use.)

The active archive with improved access time.



References / Projects

Datacenter Transformation and Data Migration Nord-Micro (Germany/Frankfurt)



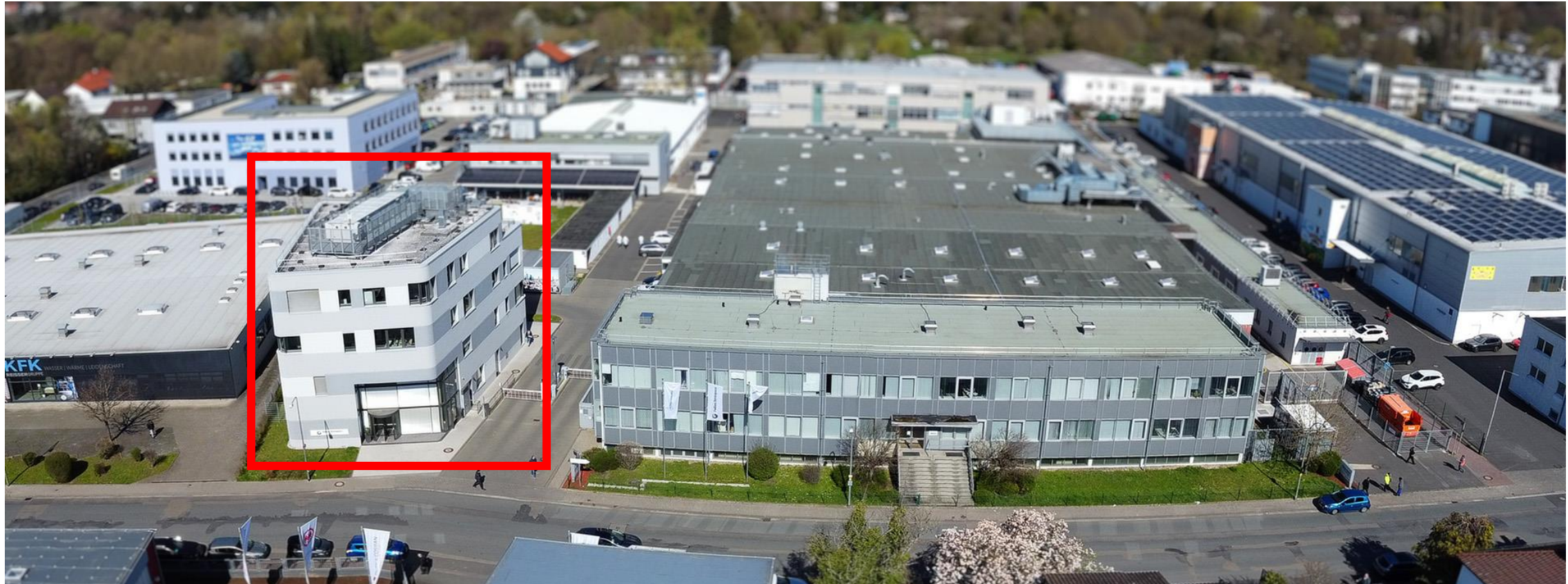
- Planning of building construction for Datacenter, datacenter transformation and data migration with **GGSC/getucon & Bechtle**, IT system houses with a full range of IT services from strategic consulting to running entire IT infrastructures.
- Contract Signing with GGSC Partner **getucon (Germany)**, as a Technology Consultancy firm, specialized for Datacenter Solutions.
- **Collins Aerospace/Nord-Micro**, headquartered in Frankfurt am Main, Germany, is an established global player in the aerospace business and a world leader in cabin pressure control systems for large commercial aircraft.



Nord-Micro Datacenter local side Germany/Frankfurt

References / Projects

Datacenter Transformation and Data Migration Nord-Micro (Germany/Frankfurt)



Nord-Micro Datacenter local side Germany/Frankfurt

References / Projects

Datacenter Transformation and Data Migration Nord-Micro (Germany/Frankfurt)



Nord-Micro Datacenter local side Germany/Frankfurt



Nord-Micro Team Leads Germany/Frankfurt

References / Projects

Datacenter Transformation and Data Migration Nord-Micro (Germany/Frankfurt)



Nord-Micro Team Leads Germany/Frankfurt



**Dr. Ulrich Raab
(CEO)**

References / Projects

Datacenter Transformation and Data Migration Nord-Micro (Germany/Frankfurt)



Nord-Micro Datacenter local side Germany/Frankfurt



Nord-Micro Datacenter local side Germany/Frankfurt

References / Projects

Datacenter Transformation Clariant (Germany/Frankfurt)

CLARIANT^E

- Datacenter transformation with **GGSC/getucon (Germany)**, as a Technology Consultancy firm, specialized for Datacenter Solutions.
- **Clariant** is one of the worlds leading specialty chemical companies, contributes to value creation with innovative and sustainable solutions for customers from many industries.



Clariant Innovation Center local side Germany/Frankfurt

References / Projects

*Datacenter Transformation Clariant
(Germany/Frankfurt)*

CLARIANT

getucon
management & technology



Clariant Innovation Center Datacenter local side Germany/Frankfurt



Clariant Innovation Center Datacenter local side Germany/Frankfurt

References / Projects

Datacenter of University of Zurich (UZH)



University of
Zurich^{UZH}

- **GGSC/Diamond SA (Switzerland)**
- **Diamond** did all the Installations of the high-performance, reliable fiber optic components in **UZH**.
- **Mrs. Andrea Sigel – Team Leader of GGSC/Diamond**



GGSC/Diamond in UZH Datacenter with Team Leader Mrs. Andrea Sigel

References / Projects

Datacenter of University of Zurich (UZH)



University of
Zurich ^{UZH}



GGSC Partner Diamond in UZH Datacenter



GGSC Partner Diamond in UZH Datacenter

References / Projects (Draft)

Project / Reference / Location



University of
Zurich ^{UZH}



GGSC Partner Diamond in UZH Datacenter



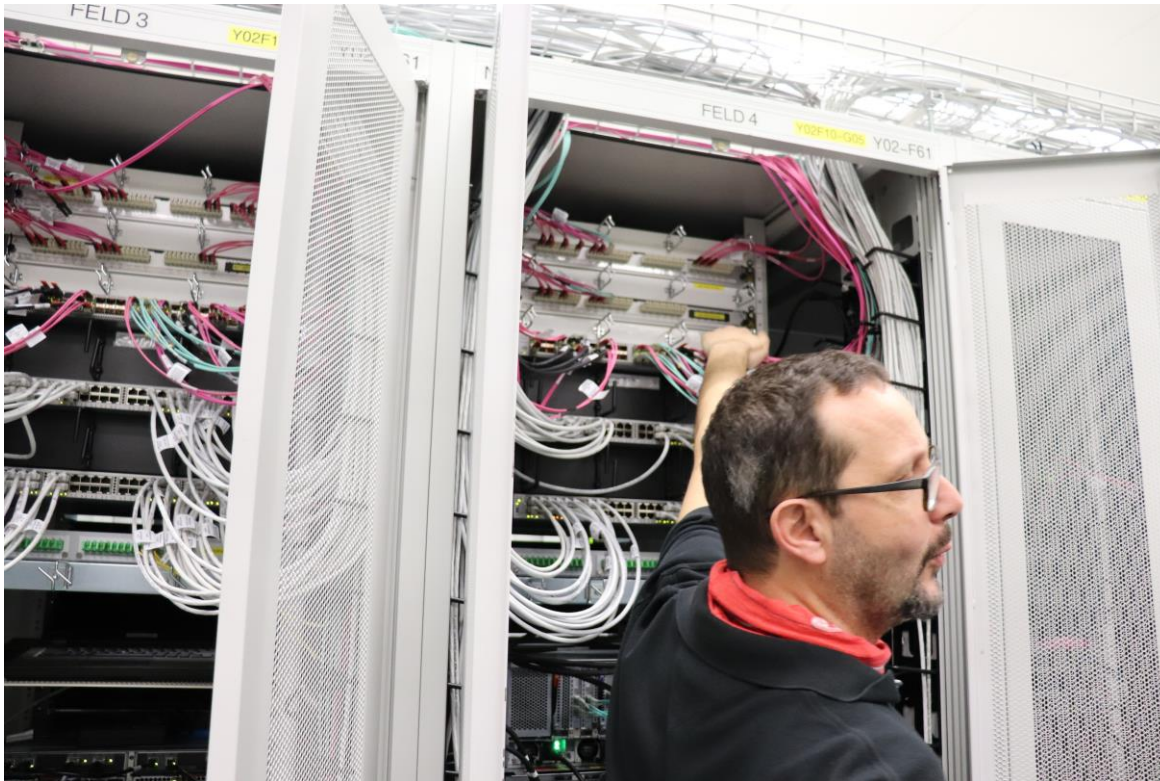
GGSC Partner Diamond in UZH Datacenter

References / Projects (Draft)

Project / Reference / Location



University of
Zurich ^{UZH}



GGSC Partner Diamond in UZH Datacenter



GGSC Partner Diamond in UZH Datacenter

References / Projects (Draft)

Project / Reference / Location



University of Zurich ^{UZH}



GGSC Partner Diamond in UZH Datacenter



GGSC Partner Diamond in UZH Datacenter



GGSC Partner Diamond in UZH Datacenter

References / Projects

Datacenter Upgrade Trusted Colo in Frankfurt/Germany



TRUSTED
COLO

- Datacenter Upgrade with **GGSC/getucon** & **Kurth Electronic**, focused on telecommunications, data technology and electrical installations.
- **Trusted Colo** is a local datacenter provider in Frankfurt/Germany and a
- High Performance Datacenter made in Germany



Cem Guler
(CIO)

Heinz-Dieter Elbracht
(Chairman & CEO of Trusted Colo)



Contract: GGSC/getucon – Trusted Colo

References / Projects

Datacenter Upgrade Trusted Colo in Frankfurt/Germany



Entry of Datacenter Trusted Colo



Datacenter Trusted Colo

References / Projects

Datacenter Upgrade Trusted Colo in Frankfurt/Germany



Datacenter Trusted Colo



Datacenter Trusted Colo

References / Projects

Datacenter Upgrade Trusted Colo in Frankfurt/Germany



Datacenter Trusted Colo



Datacenter Upgrade with high Performance Servers

References / Projects

Datacenter Upgrade Trusted Colo in Frankfurt/Germany



Datacenter Trusted Colo

References / Projects

Datacenter Upgrade Trusted Colo in Frankfurt/Germany



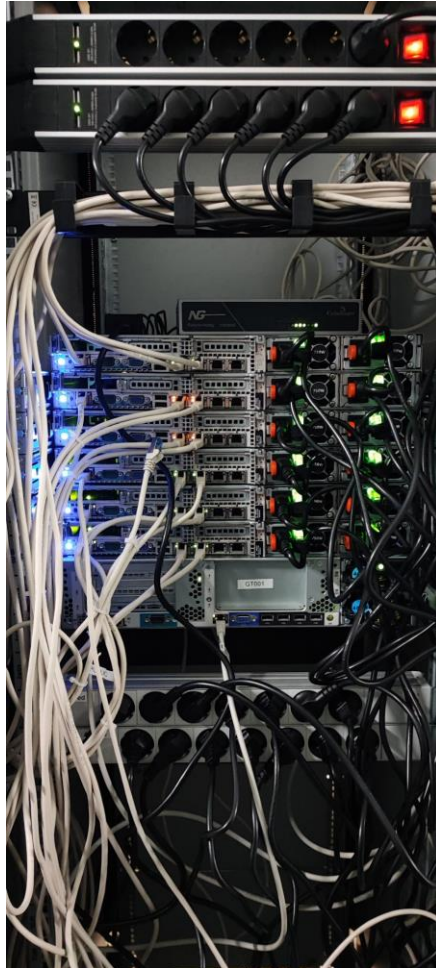
Datacenter Trusted Colo



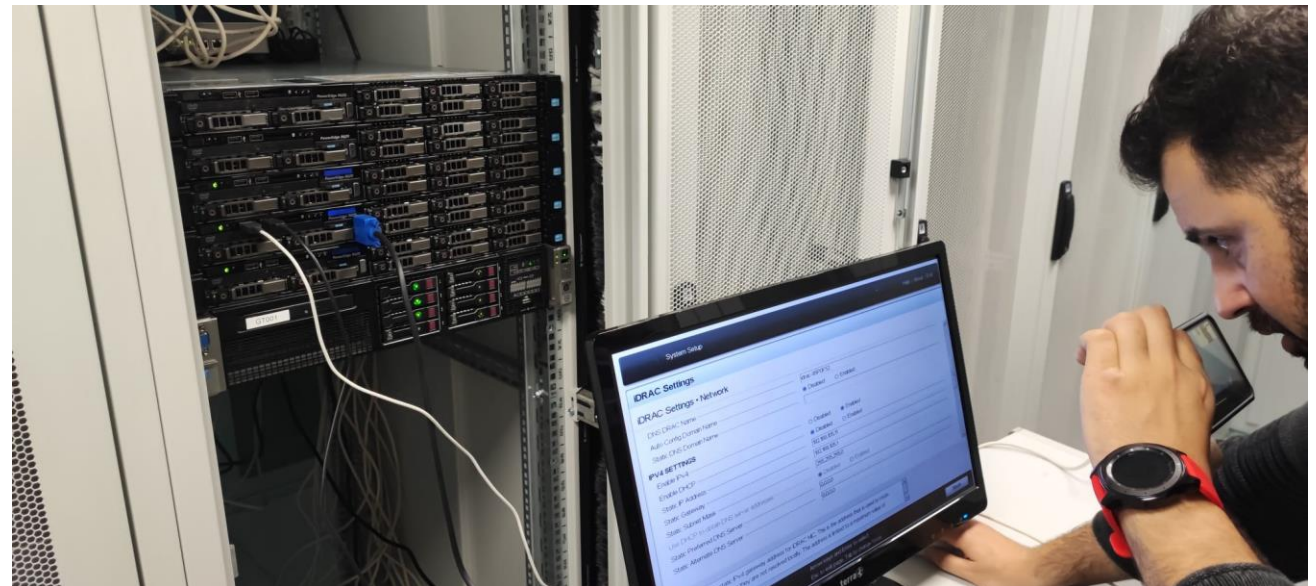
Preparation of Datacenter Components

References / Projects

Datacenter Upgrade Trusted Colo in Frankfurt/Germany



Datacenter Trusted Colo



Datacenter Trusted Colo

References / Projects

Datacenter Upgrade Trusted Colo in Frankfurt/Germany



Datacenter Trusted Colo

References / Projects

Datacenter Upgrade Trusted Colo in Frankfurt/Germany



Datacenter Trusted Colo

References / Projects

Datacenter Upgrade Trusted Colo in Frankfurt/Germany



Datacenter Trusted Colo

References / Projects

Datacenter Upgrade Trusted Colo in Frankfurt/Germany



Datacenter Trusted Colo



Datacenter Trusted Colo

References / Projects

Datacenter Upgrade Kurth Electronics in Nürnberg/Germany



- **Kurth Electronic** stands for quality, user-friendliness and innovation in measuring and testing technology.
- **GGSC & Kurth Electronics** did several projects (Hardware, technical components, Trainings, Installations) in Sudan with Sudatel and in Germany for international firms.
- Focus on telecommunications, data technology and electrical installation, the company addresses various market segments: telecommunications companies, service technicians and installers are among its long-standing customers.
- The company is one of the leading international companies in these business areas.



Kurth Electronic Headquarter Nürnberg/Germany

References / Projects

Datacenter Upgrade Kurth Electronics in Nürnberg/Germany



Multi Testing with high-performance components

References / Projects

*Datacenter transformation UBS Europe
(Germany/Frankfurt)*



- Contract Signing with GGSC Partner **getucon (Germany)**, as a Technology Consultancy firm, specialized for Datacenter Solutions.
- **UBS Group AG** is a multinational investment bank & financial services company founded and based in Switzerland.



UBS Bank in Germany/Frankfurt

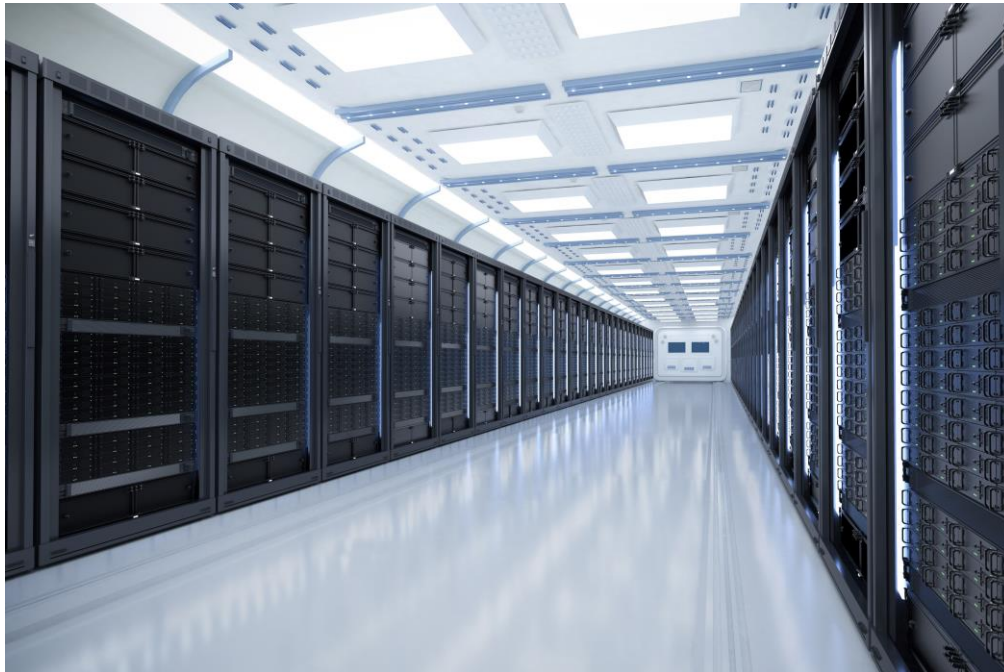
References / Projects

*Datacenter transformation UBS Europe
(Germany/Frankfurt)*



UBS

getucon
management & technology



Datacenter side UBS Bank in Germany/Frankfurt



Datacenter side UBS Bank in Germany/Frankfurt

References / Projects

*Datcenter transformation UBS Europe
(Germany/Frankfurt)*



UBS

getucon
management & technology



Datcenter local side UBS Bank in Germany/Frankfurt



Datcenter local side UBS Bank in Germany/Frankfurt

References / Projects

*Datacenter transformation UBS Europe
(Germany/Frankfurt)*



UBS



getucon
management & technology



UBS Bank Broker Office in Germany/Frankfurt

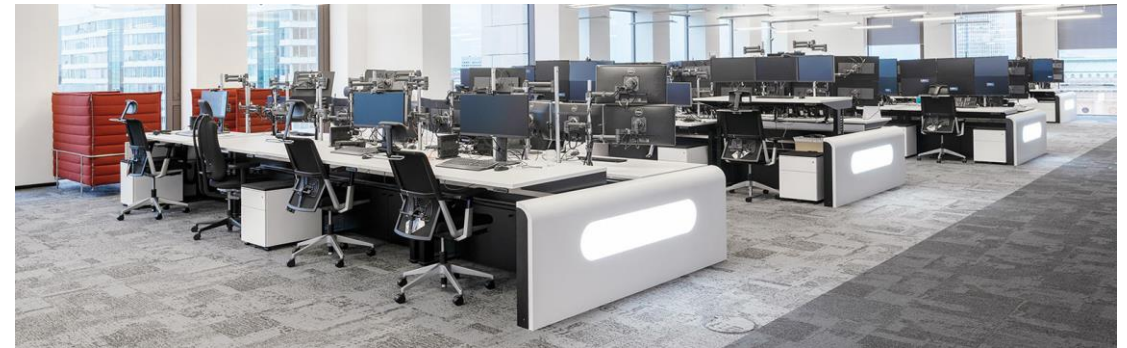
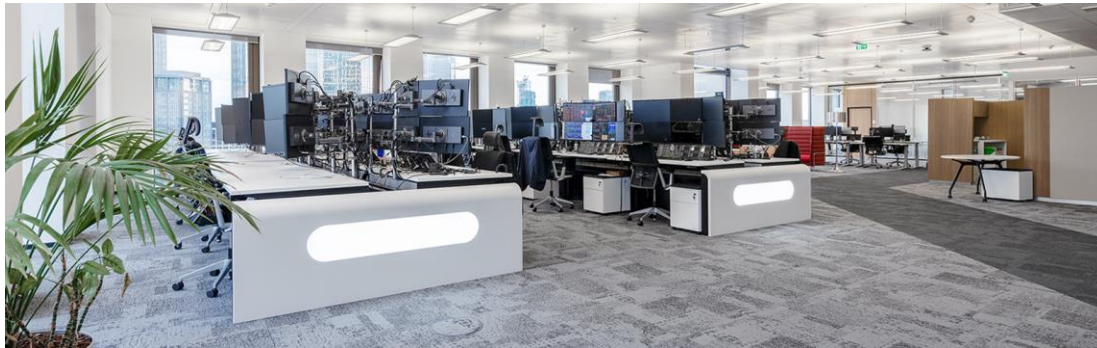
References / Projects

*Datacenter transformation UBS Europe
(Germany/Frankfurt)*



UBS

getucon
management & technology



UBS Bank Broker Office in Germany/Frankfurt

References / Projects

Ministry of Sudanese Council of Ministries



- **GGSC/Diamond SA (Switzerland)** with Sudanese Partner **sudatel Telecom Group**
- Turn key Project. Consulting, Planning, Infrastructure, high-performance, reliable fiber optic components.
- **Ministry of Sudanese Council of Ministries.**
- Fiber optic assemblies on a wide variety of fiber and cable. Different fiber and ferrule technologies. Used standard and custom connectors.



Ministry of Sudanese Council of Ministries

Mrs. Andrea Sigel – Team Leader of GGSC/Diamond

References / Projects

Ministry of Sudanese Council of Ministries



Main features



Mrs. Andrea Sigel
(Team Leader of
GGSC/Diamond)

Mr. Suliman
(Chairman & CEO)

Diamond Sales
(Diamond Sales
Manager)

References / Projects

Ministry of Sudanese Council of Ministries



Main features



Headquarter Diamond SA (Switzerland)

References / Projects

Ministry of Sudanese Council of Ministries



Fiber Optic System is a communication System that uses light as the carrier of the information from a source to a destination through a guided fiber cable (glass or plastic).

Because of high **information carrying capacity** and low attenuation, now-a-days- fiber are finding wide application in telecommunications, local area networks, sensors, computer networks



Partners

Partner Companies



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