Information about Offer

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Contact	
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Contents

1 What Connects Us

Deutsche Telekom, Business Customers

It is in our nature to seek the company of others: humans need this interaction in order to move forward. Sharing fosters closeness. It is the very reason we choose to share our important moments with those important to us.

We share events, experiences, and opinions – sometimes even our possessions. We share knowledge and our ideas. And quite often, by sharing these thoughts, we turn them into something bigger, something better. That is what drives us.

We, Deutsche Telekom, are more than just another company, which provides society with infrastructure. Whatever the circumstances, we are a trusted companion in both people's private and work lives. Whenever. Wherever. Forever making life easier for people and enriching it is our mission.

Our network is an artery pumping life: fast, reliable, and secure. It provides easy access to all who need it.

We are close to the consumer and are transparent, fair, and open to dialogue. We identify innovative products at an early stage and develop them in collaboration with our partners. We do all of this better than anyone else. This ability forms the basis of trust – an essential ingredient for long-lasting relationships.

Precisely this is the essence of our work at Deutsche Telekom. Together, with passion, focus and efficiency, we are entering a world of infinite possibilities.

This connects us.

Pioneers of digitalization

Industry 4.0, digitalization, Internet of Things…the future of business has been called many names. What they all have in common is their technological basis: a sustainable network infrastructure, security against cyber-attacks and industrial espionage as well as the capacity to process huge quantities of data rapidly and meaningfully.

This requires the joint competence of information and communication technology, which Deutsche Telekom offers to companies of all sizes as the leading ICT provider. Industrial production is changing radically. Digitally operated machines and robots may have been the standard in series manufacturing for a long time, but they haven't been connected to each other so far. This is set to change with Industry 4.0. Analysts estimate that the fourth industrial revolution will increase value creation by 80 billion euros over the next 10 years in Germany alone.

Reduced service costs
In the future, machines will "talk to each other" as part of a connected production process. They will autonomously exchange data, steer their operations in an automated way and thereby gain in flexibility. Based on the machines' data and on that of sensors and actuators, companies will improve their processes or adjust them in real time. Products themselves will also be connected and provide data about things like their current condition. This will allow service costs to be reduced and the quality of products to be continuously improved based on the analytics data.

Mass production can be individualized
In addition to companies and business, customers will also benefit from connected production. When machines are connected to each other and to a central steering unit, mass production can be individualized down to a lot size of one at approximately the same cost. Some shoe and car manufacturers are already investing in made-to-measure production. Customers can have their favorite shoes or a new car made to order by submitting their preferences on a website.

Deutsche Telekom supports companies on the way to digitalization and Industry 4.0 with the best data network, open and connected industrial platforms, cloud solutions from secure cloud data centers as well as leading data privacy and data security competence. An increasing number of SMEs and large corporations are choosing Deutsche Telekom on their path towards becoming digitalized companies in Industry 4.0, and placing their trust in the Group's industrial platforms and technological partnerships.

Talking sewing machines
Examples of this include cloud-based industrial platforms that help with analyzing and visualizing machine and sensor data. With its "Cloud of Things", Telekom Deutschland offers a translator for machine data. Components thereby communicate with the production line, the warehouse and the delivery truck. The industrial sewing machines from Dürkopp Adler, which are used worldwide, are connected to the platform. They send operating parameters to the Cloud of Things via mobile communications and forward control instructions to the steering unit.

Highly secure servers in Germany
Deutsche Telekom stores the data on highly secure servers in Germany. The data traffic is encrypted, making it secure as well. Technicians from Dürkopp Adler oversee, monitor and steer the machines over the network and decide who receives what access to the machine data and steering functions. Automatic notifications ensure that they identify and resolve critical conditions early on. The

technicians used to have to connect their laptops to the machines on site. Now Dürkopp Adler employees can fix a problem in Bangladesh from the company's headquarters in Bielefeld, Germany.

Intelligently connected port
The Hamburg Port Authority (HPA) is optimizing the increasing port traffic with a unique logistics system implemented together with Deutsche Telekom and SAP. All of the port facilities' transport and infrastructure data, such as the positions of trucks and containers, terminal and warehouse information, construction sites, bridge opening times and free parking areas, is consolidated on a single platform. This allows for all of the trucks' and containers' movements to be monitored and steered in real time. In addition to the port management, shipping companies, truck drivers, gas stations, rest stops and parking operators also benefit.

The private-cloud application is based on the Connected Car platform from T-Systems, DT's corporate customer division, and the SAP Connected Logistics software from SAP. The application links freight data to information from the telematic systems of various providers as well as the traffic and infrastructure data of the HPA. The software consolidates all of the realtime data and makes it available to users via an online portal.

Green lights ahead
Roads offices have a whole range of tasks, from winter services, through mowing, repairing drainage systems and all the way to replacing dented guardrails and street signs. The employees of the roads office in Friedrichshafen, Germany used to record damage and assignments manually with paper, a pen and a camera on site, and type the information in to their PC or scan the documents later. This was a complicated, error-prone and time-consuming process.

New digital solution
A new digital solution now collects all of the data regarding an intervention automatically and sends it to a central platform. The solution sends any information that is relevant for billing directly to the cost breakdown program of the Federal Land of Baden-Württemberg. The advantage of this is that interventions and rounds are now being planned more accurately and efficiently. The manual task is eliminated entirely, because the solution collects and transfers all data automatically. Thanks to the complete transparency of the collected data, the roads office has a better overview of the costs – and saves about 15,000 euros per year on winter services alone.

Goal: Leading European provider
On its way to becoming the leading ICT provider from Europe, Deutsche Telekom has put its own business models and processes to the test. The company as a whole places a strong focus on the sustainable growth areas of cloud computing, machine-to-machine communication (M2M) and advanced data analytics. Due to the global trend towards standardized solutions, T-Systems – a service provider for large companies and corporations – has set itself the goal of earning half of its total revenue with scalable, platform-based IT by 2017.

The key offers
In the business customer segment for SMEs, DT is one of the most successful ICT providers in central and eastern Europe, offering business customers international telecommunications and IT services. In Germany, Deutsche Telekom is targeting the growth market of SMEs. Cloud-based services, security solutions, convergent products from fixed-line and mobile communications and solutions for virtual collaboration are the key offers designed to achieve the ambitious goal of growing with IT solutions in the SME segment. For this purpose, the product portfolio is being expanded and cooperation with specialized partners is being reinforced.

INDUSTRY 4.0: SUMMARY OF DEUTSCHE TELEKOM'S PORTFOLIO — THE BIG PICTURE

NETWORK INFRASTRUCTURE
- Data transfer via mobile communications (e.g. LTE)
- Data transfer via fixed-line communications (e.g. fiber optics)

HOSTING
- Data hosting (cloud)
- Data management

INDUSTRIAL HARDWARE
- Managed industrial routers for stable and secure data connections
- Sensor systems

IT SECURITY
- High-security data centers such as Magdeburg-Biere (German data privacy law)
- Encrypted data transfer

CIP PLATFORM
- Central "Connected Industry Platform" (CIP)
- (Big) data analytics software

USER INTERFACE
- Applications for person-machine interaction
- Web frontend

2 Deliveries and services

2.1 Cisco components

Pos.	Description	Qty	Price	Total
2.1.1	**Cisco components | switches, server, firewalls**	▮		███████

2.2 Loadbalancer and NAS (Backup)

Pos.	Description	Qty	Price	Total
2.2.1	██████████████	█	██████	██████
	████████████████████			
	██████████████████			
2.2.2	████████████	█	██████	██████
	███████████████████████ ████████████			
	█████████████████			
				██████

2.3 IBM Storage

Pos.	Description	Qty	Price	Total
2.3.1	████████████	█	██████	██████
	█████████████████ ██████			
	████████████████			
	█████████████ ███			
	1x REMOTE MIRRORING			
				██████

2.4 Licenses for virtualization and backup

Pos.	Description	Qty	Price	Total
2.4.1	**VMware vSphere 6 with Operations Management Standard Acceleration Kit for 8 processors**	1	██████	██████
	inkl. 36 Monate Wartung			
2.4.2	**Backup & Replication Standard for VMware inkl. 36 Monate Wartung**	1	██████	██████
	inkl. 8 CPU's			
				██████

2.5 Services

Pos.	Description	Qty	Price	Total
2.5.1	**Daily rate** The services are charged on a time and material basis per day and technician, plus round trip	1	██████	on a time and material basis
2.5.2	**Round trip** per hour and technician	1	██████	on a time and material basis

2.6 Data Center Services

Pos.	Description	Qty	monthly rent	monthly total
2.6.1	**42 HE Collocation incl. duplicated data line and 1Gbit Uplink DC to DC, monthly rent** minimum contract period: 3 years	2	██████	██████

Data transfer incl. 500 GB per month with 1 GBit fibre optic cable vLAN between
Data Center A and Data Center B | incl. dual 100Mbit Uplink (Internet)
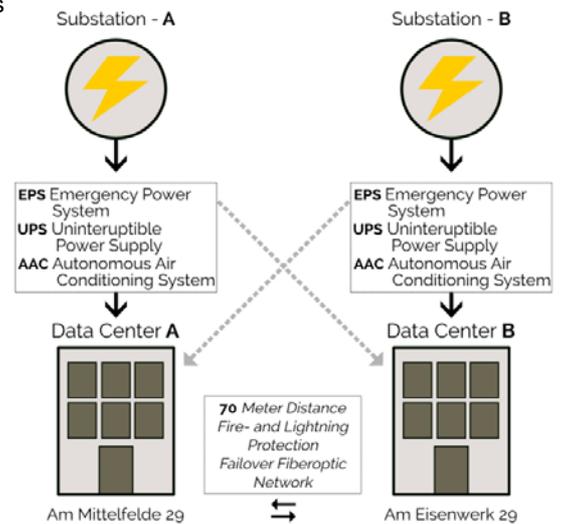IP-adresses: up to 4 IP's (/29), according to RIPE-Directives
<u>Service</u>
99,99% Backbone-Availability guaranteed
24/7 free Service-Hotline (████████████)
24/7 monitoring of vital Server
24/7 access to data center

Creation of an emergency plan in case of failure
<u>DataCenter (DC)</u>
Uninterruptible power supply (UPS)
Emergency power system (NEA) / emergency generator,
Redundant air conditioning system (N+1)
Continuous raised floor, early Fire Detection (VESDA)
Physically separate supply lines for power and network
Redundant Backbone (Carrier and Routing-Equipment)
Electronic Access Control, video surveillance
Around the clock staff on site

Pos.	Description	Qty	monthly rent	monthly total
2.6.2	████████████████████	█	██████	██████
2.6.3	████████████████████	█	██████	██████

Pos.	DC provision charge	fixed charge	Total
2.6.4	████████████████████	██████	██████
2.6.5	████████████████████	██████	██████

2.6.6	**Data Center extensions**			**Optional**
	each additional 1TB of data transfer per month	per TB	monthly	███
	per additional 230V power connection (Schuko) per month	per item	monthly	███
	SSL certificates		per year	███

2.7 Maintenance

Pos.	Description	Qty	contract period	monthly rent
2.6.1	**EDV Service and Support**	1	3 years	███

Scope of service:

Service Hotline 24x7x4 reaction time
Remotesupport during working hours 8-18 o'clock (except on holidays and weekends, hourly rate: ███)
Remotesupport 24x7 after 18-8 o'clock and on weekend (hourly rate: ███)

Minimum contract period: 3 years

Central hotline for incident management
Remote troubleshooting
On site troubleshooting

Phone, fax and ticket system for adoption of pre-qualified incidents.
(Reachability support center on 365 days, 24/7)

Unlimited calls (fixed price per incident service)
4h reaction time
Dial remotely in to customer network and create a diagnosis, if necessary
under participation of manufacturer, on site troubleshooting

Contacting the named person
Service for hardware replacement will done within 4 hours in Germany or 8 hours
outside Germany except on holidays and weekends.

Replacement of hardware.

Connecting the exchanged hardware to the available LAN and 230 Volt
infrastructure
Configuration of the hardware components
Performing an acceptance test on site
Telephone and electronic feedback
Incident monitoring and escalation processing

An incident status message must be done on the following way:

Hotline Support Centers
- phone ████████████ or via
- eMail: h████████████
- ticket system

The incoming incident status messages have to be meaningful and unique and shall comprise at least the following contents :

- name of person and callback number
- type of incident,
- begin of incident
- place of incedent

The customer has to provide access to the LAN via Teamviewer/Netviewer/Logmein

Data protection

The parties shall ensure compliance with the statutory regula-tions on data protection. In particular, Telekom shall imple-ment the obligation of its employees to maintain data secrecy pursuant to § 5 of the German Federal Data Protection Act (Bundesdatenschutzgesetz – BDSG) and to maintain tele-communications secrecy pursuant to § 88 of the German Telecommunications Act (Telekommunikationsgesetz – TKG) and the required technical and organizational measures pur-suant to § 9 BDSG and the Annex to § 9 BDSG.

3 Payment

3.1 Price summary

Pos.	Description	charge
2.1	Cisco components	████████
2.2	███████████████████████████	████████
2.3	███████	████████
2.4	Licenses for virtualization and backup	████████
2.5	Serives	████████
2.6	Data Center provision charge	████████
	Total, once-only payment	w/o sales tax ████████

Pos.	Description	contract period	charge
2.6	Data Center Services Collocation	3 years	██████
2.7	Maintenance	3 years	██████
	Total, monthly rent	w/o sales tax	██████

Alle Preise gelten zzgl. Mehrwertsteuer

3.1.1 Price clause

All prices in this proposal are specified in EUR and are exclusive of VAT at the rate applicable at the time of delivery and provision.

3.1.1.1 Duration of the Agreement

Prices are calculated on the basis of an agreement term of 3 years.

After 3 years, the contract is automatically extended for one more year.
The notice period is 3 months before expiration.

3.1.1.2   Period of Validity

With the provisions contained in number 3.2.1 the information in this offer is valid until December the 31st, 2015.

3.2   Supplementary conditions

3.2.1   Legal conditions

We submit this Offer with the proviso that the contractual and commercial conditions are still to be negotiated with you in detail, in particular in relation to liability (limitations) and warranty and that a contract covering these conditions is to be concluded. Until then, all prices are subject to confirmation. Please let us know if you wish to receive your complete, binding contract documents.

3.2.2   Warranty disclaimer

We offer no warranty for any specific feature of the service. Any technical data, specifications and service details given in this Offer and the respective accompanying documents are exclusively intended to describe the services. We accept no liability for any manufacturer warranties.

3.2.3   Confidentiality

This Offer contains confidential Deutsche Telekom information and is provided under the condition that it is neither used completely or partially in any way or form, nor made accessible to third parties, with the exception of the customer's company's employees and professional advisers for the purpose of evaluating this Offer or for other purposes that have been explicitly authorized in advance by us in writing.

3.2.4 Fee and conditions of payment

Once charges are due within 10 days after receipt of the goods ordered and Invoice Receipt for payment.

The Parties agree that the total price of the goods ordered shall be paid under the above conditions as follows:

Partial invoice for hard- and software   :   after partial-/ full delivery
Partial invoice for services   :   after installation and acceptance

The hard- and software components remain in property of Telekom until full payment of the purchase price.

If the customer violates his obligation to make payments despite a warning, Telekom shall be entitled to bar the services at the customer's expense. In this case, the customer shall still be required to pay the monthly charges.

Telekom reserves the right to assert any other claims arising from a default in payment.

signature: ………………………….   signature: ………………………….

APPENDIX C

Web-Hosting / Colocation

Disaster recovery
☐   No single geographic location

=> redundancy via neighbouring data center

DataCenter (DC)
Uninterruptible power supply (UPS)
Emergency power system (NEA) / emergency generator,
Redundant air conditioning system (N+1)
Continuous raised floor, early Fire Detection (VESDA)
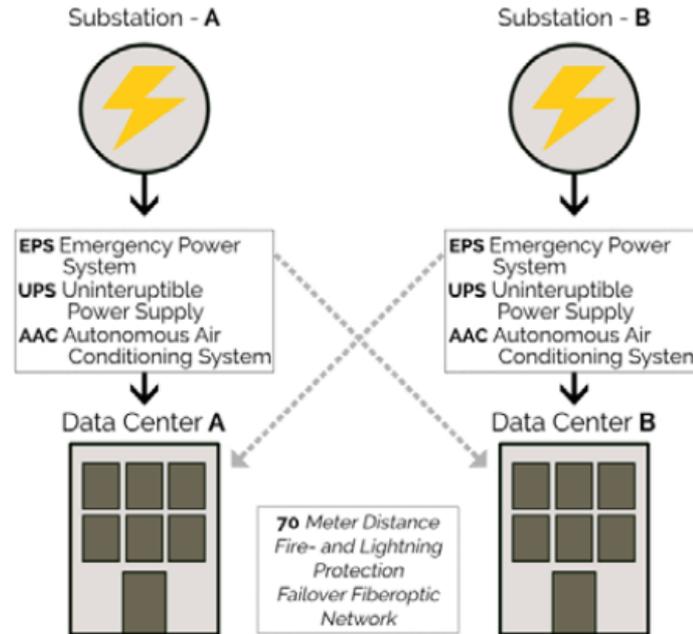Physically separate supply lines for power and network
Redundant Backbone (Carrier and Routing-Equipment)
Electronic Access Control, video surveillance
Around the clock staff on site

Advantage
☐   Data loss via connection much lower
☐   Backup connection much safer
☐   4 tier security possible (colocation in different city -> max 3 tier)

Substation - **A**

Substation - **B**

EPS Emergency Power System
UPS Uninteruptible Power Supply
AAC Autonomous Air Conditioning System

EPS Emergency Power System
UPS Uninteruptible Power Supply
AAC Autonomous Air Conditioning System

Data Center **A**

Data Center **B**

70 Meter Distance
Fire- and Lightning Protection
Failover Fiberoptic Network

APPENDIX D

Access Planning User Requirements

Transport for London

Programme: Access Transformation Programme

Project: Acess Planning

Access Planning User Requirements Specification

Transport for London

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1 Introduction

1.1 Background

London Underground is the oldest underground railway network in the world, dating back to 1863 and is one of the most complex metros carrying in excess of one billion passengers a year (as many as Network Rail) over their 402km network, supported by approximately 270 stations, 19 depots and 11 lines.

TfL is currently investing in a major upgrade programme that will introduce modern signalling, new rolling stock, new power systems, replacement track and enable more trains to be operated.

This along with general maintenance works results in a large requirement for track, station and depot work access requests. These access requests need to be planned and coordinated taking into account both safety and efficiency and the best use of coordinated resources.

Last year approximately 20000 access requests were raised and booked across all lines for different work types.

The access planning and coordination is undertaken by London Underground Access Department who are responsible for planning access with the minimum of disruption to the travelling public.

1.2 Access Transformation Programme

The Access Department is a London Underground department that plans and overseas and communicates access to London Underground infrastructure for maintenance and upgrade work.

London Underground is under continual pressure to improve its access efficiency through better coordination and use of technology, as a result of reduced access time because of increased train running during the night and drive to reduce costs. This has resulted in an Access Transformation Programme (ATP) being initiated to improve access to the track, stations, sidings and depots across the London Underground network.

The vision for access...

> *Simple access portal for booking access; where a highly competent team maximise the available working time to achieve the scope of work; maximising access utilisation and efficient deployment of resource.*
>
> *Access to track is simpler and safer than at present, where those accessing the track environment are told when it is safe to do so, being "permissioned" onto the track via an Access App. directly from the power control system, SCADA which registers their presence.*
>
> *Site persons in charge can easily take responsibility for all aspects of worksite safety including accessing the track in engineering hours; but also within possessions where the SPC(P) routinely delineates possession and worksite boundaries.*

Full use is made of the signalling system for protection purposes as well as routing of trains within possessions.

Reduced call back times, and utilising traffic hours routinely for works on stations, as well as speedier access to the track, enables "more time on tools"; and with this, reduced unit costs, earlier delivery and tangible savings.

By 2023, the ATP will have delivered £260M savings back to London Underground, and played its part in delivering Night Tube.

Appendix A defines a list of acronyms and terms that may aid the reader's understanding of this document.

1.3 Purpose of this document

The purpose of this document is to define the requirements to deliver an access planning system to improve the accuracy and efficiency of the access planning process and plans for the London Underground. The new system will replace the existing systems defined in the scope of this document. There may however be a period of time where both/multiple systems are used in parallel.

2 Objectives

2.1 Business Objectives

- To reduce the number of data translation related issues that occur between the existsing systems used to manage access planning.
- Reduce the level of human led error checking required to support the publishing of access plans.
- To alow the access requester to be more highly informed of the existing access booked in the underground network and this give then greater responsibilty in managing their own access.
- To provide a solution that enables the access team to be more adaptive to "last minute" changes in access.
- To reduce the risks of mistakes occuring in the access planning proccess when "last minute" changes are made to access plans.
- To provide accurate and consistent information to the access control systems to esure the work activities on the network are carried out with the correct level of control.
- To enable all access planning data from concept through to published work to be avaiable from a single source and delivered to the user in a timely manner.
- To enable more efficeint access plans to be produced that decrease the operational downtime of the railway.
- To reduce or even iradicate the numbers of incidents reported that are associated with access planning.
- To ensure that any change to business systems or processes do not increase any risks to staff or contractor safety.

2.2 System Objectives

- To utilise where possible existing TfL technoogies.
- The solution shall conform to TfL software and hardware standards.
- The architecture of the solution should be componentised where posible to be able to update or change in future.
- The solution shall be able to interface to strategic TfL reporting systems.
- The solution shall be able to receive infrastructure based data from existing TfL systems such as GIS, CAD or other databases.

2.3 Project Objectives

- To ensure that any change to business systems or processes do not increase any risks to staff or contractor safety.
- The introduction of any proposed system will not impact negatively on the process of planning access within TfL.
- Does not icrease the safety risks for any employee from intro of new systems
- To recommend process and data inprovements to other systems/projects that interface to the planning system.
- To delver a solution to meet the business requirements in terms of functionality and timescales.

- To ensure that the relevant individuals are informed of any process and system changes resulting in a new solution being delivered.

- The project shall deliver a solution to meet the requirements specified in this document. Such a solution may include proposed changes to operational processes that must be agreed with the Access Transformation Programme whilst developing the chosen solution.

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3   Scope

3.1   In Scope

The business functions that the solution needs to support fits into the Access Planning functional area. Areas of access control are out of the scope of this proposal. Information available in the access planning solution will be required to be supplied and made available to the access control systems.

Access Planning involves capturing requests for work leading to a planned and booked access being carried out. The results of the booked access must be made available to many individuals within the organisations in preparation for the on the night work that will take place. This functional area is used over a very long period of time (i.e. some high level planning can occur years in advance).

Access Control is focused on the processes that happen on the night of the work taking place in or around stations and track. The main functions being authorisation of qualified individuals onto the stations and track and managing this process in a safe way that minimises risks to the workers.

The information below shows the main objectives and processes involved in each function of the access process.

MAYOR OF LONDON
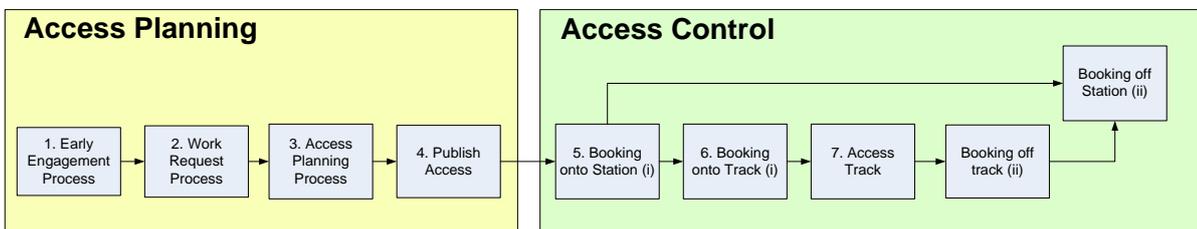
3.2 Out of Scope

The following is deemed out of scope for the Access Planning Solution:

- All aspects of the business change will be addressed by the Access Transformation Programme.

- Decomissioning of any redundant systems is excluded from the scope of this requirements specification. Descomissioning should however be included in the overall scope of ATP.

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