



Greenock Colocation

Data Centre Technical Overview

The IBM colocation service operates from a new £3 million purpose built data centre at IBM Greenock. The colocation centre is located within the secure confines of the IBM Campus. With its own railway station, and with Glasgow Airport only 30 minutes away, and ample dedicated client parking, the colocation data centre is easy to reach.

A low cost service that provides a secure and resilient environment for clients' infrastructure, colocation has been designed using IBM's extensive knowledge of data centre hosting and design and leverages the latest technologies and processes for a data centre. Charges are fixed or metered, predictable, and billed monthly. The client has the choice of retaining management and monitoring responsibility for the equipment (Colocation), or asking IBM to perform basic management and monitoring functions (Colocation Plus). Client-owned equipment from any provider is welcomed in the data centre.

In addition, optional offerings include extra security from IBM's ISS subsidiary and hardware and/or application monitoring are available.

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Table 1
General Specification

| Features of the IBM Colocation offering | Colo | Colo Plus |
|---|------|-----------|
| Secure location in IBM's campus | Y | Y |
| Data centre specifically designed for Colo | Y | Y |
| Account manager for your account | Y | Y |
| Easy access by public transport or road | Y | Y |
| Scalable solution | Y | Y |
| Reduced carbon footprint | Y | Y |
| Operations support ('hands and eyes') | Y | Y |
| Simple and secure access to racks 24*7 | Y | Y |
| Cabling and connectivity | Y | Y |
| Racking, shelving and panelling for the supplied cabinets | Y | Y |
| Charges are fixed and predictable and billed monthly | Y | Y |
| Metered power charges | Y | Y |
| Access to IBM data centre expertise | Y | Y |
| Contact Centre (up to 23 languages) | Y | Y |
| Optional add on Services: | | |
| • Information Protection Services (Backup/Recovery) | N | Y |
| • Remote Managed Infrastructure Services | N | Y |
| • Internet Security Systems | N | Y |
| • Integrated Communication Services | N | Y |
| • Maintenance and Technical Support Services | N | Y |
| • End User Services | N | Y |
| • Storage and Data Services | N | Y |

Table 2
Summary – Technical Specification

| Feature | Colo | Colo Plus |
|--|------|-----------|
| Raised floor (1 tonne per sq metre) | Y | Y |
| Power (single UPS feed) | Y | Y |
| • Single or 3 phase | Y | Y |
| • Diesel generator | Y | Y |
| • Maintenance free PDU | Y | Y |
| • Power strips supplied for power distribution | Y | Y |
| • Additional power (optional extra) | Y | Y |
| Lighting designed to CIBSE spec | Y | Y |
| • Emergency lighting | Y | Y |
| Aircon redundant cooling capacity | Y | Y |
| • Underfloor airconditioning | Y | Y |
| Security lockable racks | Y | Y |
| • Swipe card door access | Y | Y |
| • CCTV cameras | Y | Y |
| • Security personnel onsite 24*7 | Y | Y |
| Fire detection (to BS5839) | Y | Y |
| • Sprinkler system | Y | Y |
| • VESDA floor alarms | Y | Y |
| • Ceiling fire alarms | Y | Y |
| Connectivity from AT&T (2 x 100Mb connection) | Y | Y |
| • Choice of PTT | Y | Y |
| • Dynamic failover | Y | Y |
| • Bandwidth in increments of 1Mb | Y | Y |
| • Cat 6 cable provided | Y | Y |

Table 3
 Technical Specification of Colocation
 Datacentre

| Technical Specification |
|---|
| <p>Raised Flooring Raised flooring accommodates machines up to 1 tonne in weight (10kN/m2)</p> |
| <p>Power The datacentre has the following power attributes:</p> <ul style="list-style-type: none"> • Single or 3 phase power supplies, terminated at commando sockets, are installed under the raised floor. Each rack or device has the capability of being powered from two different PDUs. • Dedicated electrical infrastructure • Single static UPS with internal static bypass and maintenance bypass • Designed to ensure whole system can be maintained with out impact to the DC • Diesel generator with back up fuel supply • Floor mounted "maintenance free" Power Distribution Units (PDU) positioned across the Data Centre area in order to effectively distribute power between the racks. Additional circuits can be installed without the need for the PDU to be taken offline. |
| <p>Lighting</p> <ul style="list-style-type: none"> • Lighting is designed to CIBSE regulations and in accordance with IBM standards installed at 45° angle • Emergency lighting complies to BS5266 |
| <p>Air Conditioning</p> <ul style="list-style-type: none"> • The air conditioning design is to maximise the under floor static pressure to provide uniform air distribution throughout the room and to also control the humidity of the space. • Based on the hot/cold aisle principles • Multiple individual in-room coolers • Redundant cooling capacity • The data centre is served from 2 independent 260KW air cooled chillers, located within an external compound, each rated at 100% of the total cooling load of the Datacentre. • Internally, within the 2,500 square foot area, 4 x 28kW down flow cooling units distribute conditioned air under the raised access floor. |
| <p>Security</p> <ul style="list-style-type: none"> • Processes are implemented in order to control physical access to hardware • Individual secure racks are installed within the data centre in order to secure clients' equipment Each rack is fitted with suitable locks with associated access control procedures • Door access swipe/proximity card readers are in place at each door in the data centre to provide maximum security • In addition to this alarm monitoring with CCTV cameras is also in place 1.1.6 |
| <p>Fire detection</p> <ul style="list-style-type: none"> • Fire alarm system installed to BS5839 comprises automatic detection via ceiling mounted smoke detector, sounder units and manual break glass units • A sprinkler system is also in place • VESDA alarms in floor • Point fire detection alarms in ceiling level • Dedicated wet sprinkler system operated as individual sprinklers |
| <p>Connectivity</p> <ul style="list-style-type: none"> • Connectivity is supplied by 2 x 100Mb connection (one primary, one backup) to different and diverse AT&T points of presence in the UK. The physical 100Mb connections are supplied by different PTTs with connections into the Greenock site with AT&T supplying the termination router at the Greenock end and the Node at the Point of presence end of the circuit. This ensures full physical diversity of the connections into Greenock with a backup router at the Greenock site and an alternative AT&T Point of Presence at the other end of the circuit. • Delivery of Internet to the customer environment is done with a LAN drop cable from the ISPs, should that be selected as part of the solution. The live and the backup drop cables are presented on an HSRP address into the customer environment enabling dynamic failover in the event of equipment failure. A subnet of IP addresses is available to the customer down the drop cables which terminate on the same private VLAN on a customer switch. • Bandwidth is available to the customer environment in increments of 1Mb. • This forms the basic level of internet connectivity included in our colocation offering. We of course tailor more complex client-specific requirements with the appropriate technical solutioning as part of our requirement gathering process, to ensure the right solution is designed to meet client needs. |
| <p>Account Management</p> <ul style="list-style-type: none"> • Clients have access to IBM Account Management. The purpose of this team is to provide a first point of contact for: <ul style="list-style-type: none"> – Operational issues – Commercial and relationship issues – Solutioning growth opportunities. |

Table 4
Service Components Summary

| Service Components Summary | |
|--|---|
| Hosting Space | IBM provides floor space, cabinet space and cabinets to meet client's current needs – and can be reconfigured to evolve along with client requirements. The rate charged for space includes all costs including power, air-conditioning etc. There is no utilisation charge applied on top of the rate |
| Facilities Equipment | IBM provides the appropriate: <ul style="list-style-type: none"> • Racking, shelving and panelling for the supplied cabinets • Cat 6 Cabling • Power strips for power distribution |
| Additional Power | IBM can provide additional power to supplement the standard supply if this is required for your solution |
| Standard Installation | IBM installs and powers up your servers at the Greenock datacentre |
| Operations Support | IBM can provide Operations Support ('hands and eyes'). This assistance is optional, is driven by your specific requirements – and is on request through the IBM Customer Service Centre |
| Transition Management and Project Management | IBM assigns a Customer Boarding Manager who is responsible for both transition and project management activities. The Boarding Manager works with clients during the transition, and helps ensure that the installation plan is executed accurately, in order to minimise the impact on client's existing business processes. |
| Steady State Account Management | IBM provides client with an Account Management function whose role is to monitor the service that IBM provides, and to suggest methods of improvement in line with changing client business requirements. Ultimately responsible for customer satisfaction, this team works in conjunction with the IBM Customer Service Centre and other IBM support groups to ensure the service is delivered efficiently. The team acts as a point of escalation for operational or technical issues, and ensuring all aspects of Problem Management, Change Management, Issue Tracking and other related activities are co-ordinated. |
| Site and Infrastructure Design | Working with the client, IBM supplies any specific site requirements that may have an impact on the overall design. |

Table 5
Facility Services Summary

| Facility Services Summary | |
|--|---|
| Introduction | Server space is available in rack configurations. When client equipment is placed in a rack, the rack space is locked to protect client equipment from physical harm. <ul style="list-style-type: none"> • Each facility includes UPS backed power feed sized to meet the environment. • Facilities are supported with 24X7 365 days of the year physical security. |
| Implementation Overview. Description of Standard Services: | |
| Facility | <ul style="list-style-type: none"> • Customers are required to give 4 hours notice for a site visit • Customers pass through security and are also escorted to their Space • Customers must carry proof of identity at all times • Two levels of authorisation are required for the removal of Customer Components • Customers to provide a list of equipment. |
| Rack Space Secured Rack Space is available as follows: | <ul style="list-style-type: none"> • The power supplies in each rack are supplied from different PDUs for resilience. It is delivered to the equipment itself via two 12 way power strips. The maximum allowable load per rack is 8Kw. • Each rack has 2 x 24 Way patch panels, each from different switches to ensure resilience. Data and patch cabling throughout the facility is to Cat 6 standard. |

Table 6
Service Level Objectives

| Service Level Objectives | |
|--|--|
| Activity/Function | Service Level Objective |
| Power Supply – Operational and redundant electrical power supplies via UPS system. | IBM aims to provide power to the Power Distribution Units with the rack space with 100% availability |
| Security – Alarm systems and Closed Circuit Television | Provided on a 24 x 365 basis |
| Climate Control | An average temperature of 21 ° (+ or - 2°)C will be maintained in the data centre |

Table 7
On-Site Operations Support

| On-Site Operations Support |
|---|
| <p>Introduction</p> <p>On-Site Operations can supplement client's remote staff in enabling the continuous operation of the service. Support is measured in events in blocks of 1 hour which include manual server reboots, LED status feedback, tape changes and tape preparation for shipping off-site.</p> |
| <p>Implementation Overview</p> <p>Description of Standard Services:</p> <ul style="list-style-type: none"> • Clients subscribe on a monthly basis, for which 2-4 hours assistance per rack is available per month (dependent on client needs). Any additional time requested, above the agreed number of hours, will be charged on an hourly basis • Services are available 24 hours per day, 7 days per week • Client will schedule events by contacting the Customer Support Centre • Reboot Service includes: <ul style="list-style-type: none"> – A reboot sequence (which is to be provided by the client) – Provide LED status feedback to the monitoring centre or client – Provide confirmation of Reboot process satisfactory completion. |

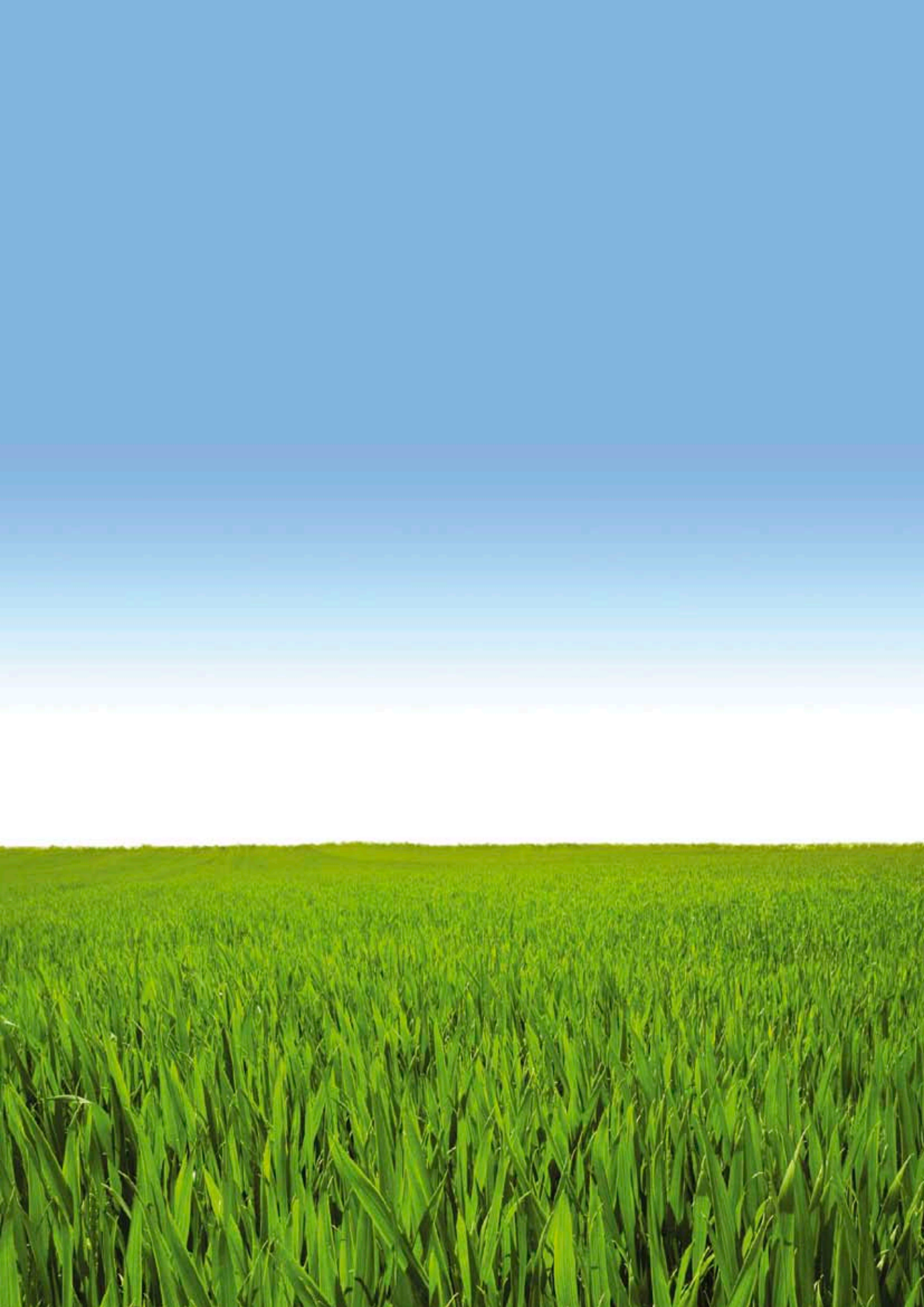
Table 8
Service Responsibility Matrix

| On-Site Operations Support | | |
|---|----------------|---------|
| | Responsibility | |
| | IBM | Client |
| Non-Automated Reboot Service | | |
| Log and dispatch event requests | Perform | |
| Provide reboot process documentation | | Perform |
| Initiate reboot / power-on according to customer process | Perform | |
| Provide on-site equipment LED status feedback | Perform | |
| Notify client of any problems incurred during reboot/power-on process | Perform | |
| Provide confirmation of completion of events | Perform | |

Table 9
Service Level Objectives

| Service Level Objectives | |
|--------------------------|--|
| Activity/Function | Service Level Objective |
| Client Access | 24 hour access availability, with 4 hours notice required. |

Prospective customers are very welcome to view the facility at IBM Greenock at any time.





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