

Architecture for data integrity

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Harkeeret Singh
Head of Data Centre Strategy
BT

In association with GlassHouse Technologies, BT is optimising its data back up processes to save cost, mitigate risk, and reduce environmental impact

Aiming for lights out

As a global services company, BT cannot afford to be less than world-class in any functional discipline – irrespective of whether that area is open to public scrutiny (such as customer service) or deep within its operational infrastructure. Nowhere is that pressure more keenly felt than in the company’s data centres, where the possibility of serious failure could affect BT and its customers with equal severity.

Harkeeret Singh, Head of Data Centre Strategy at BT, comments: “BT’s data centre strategy is to achieve industry leading levels of resilience while optimising costs and environmental benefits. We are moving to ‘lights-out’ operations, where highly mobile staff can support the company’s data centre estate across the UK rather than having staff resident in each.”

Manual back up procedures had no place in such an automated model and, when a system failure saw senior BT managers’ Microsoft Exchange files put at risk, it was time to expedite plans for change. In fact, BT had in excess of 80 centralised back up environments with low asset utilisation.

Short-term action; long-term focus

GlassHouse Technologies – a leading independent consulting firm – was invited to assist. GlassHouse is staffed by experts who think strategically about managing data. The objective was to arrive at an automated back up environment offering:

- Reduced costs
- Improved service
- Mitigated risks
- Minimum environmental impact

That transformation would not only facilitate the transition to lights-out but would also allow BT to consider taking on the management of customers’ data centres through a dynamic, service-oriented support organisation with more mobile engineers.

In April 2007 a team of six GlassHouse consultants was parachuted into BT, to work alongside BT staff. In a classic 80:20 approach the team set to work by targeting the 14 worst offending backup environments across six data centres to reduce the number of backup incidents. This was followed, in June 2007, by the launch of an 18-month transformation programme organised into the following phases:

- Discovery
- Standardisation of services
- Creation of headroom
- Transition
- Handover to business as usual

Mark Gilbey, the GlassHouse Client Manager, says: “At a tactical level our brief was to release capacity and reduce incidents while using root cause analysis to identify and eliminate underlying problems. Longer-term we had to stabilise and optimise the estate to release under-utilised resources and enable backup operations to be fully automated.”

Case study

BT Strategic Data Centres

“Through our partnership with GlassHouse Technologies we are getting closer to achieving our vision of automated, standardised, and highly efficient back up services for both internal and external clients. The programme is also improving our business sustainability by, for example, cutting down on travel and reducing the amount of hardware consuming power and requiring cooling.”

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Head of Data Centre Strategy
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The programme had several dependent initiatives, which include working with the BT operational teams to automate and consolidate back up scheduling and control. Part of this process was to support BT in an accelerated rollout of Oracle Recovery Manager (RMAN) – its chosen back up, restore, and recovery solution.

Mark Gilbey continues: “One of the problems was lack of structure and standards around the backup service offerings. A database might get 95 per cent backed up, something would go wrong, and the whole thing would start again; despite the fact that the majority of the files were perfectly well protected.” Harkeeret Singh adds: “Back up and restore considerations are often an afterthought for designers, so we are doing a lot of work to ensure future backups fit a more rational model.”

Offices worldwide

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Transformational dividends

By late-2007 the joint GlassHouse BT team had achieved a hundred-fold reduction in the number of traps (as part of a steadily declining ongoing trend). Furthermore, the back up success rate had climbed to in excess of 98 per cent on a consistent basis. In addition, savings of £650,000 had been identified and hand-back to business as usual management was in progress.

Simply using better design principles, back up capacity within the existing estate was increased by 25 per cent from four petabytes to five petabytes (a petabyte is over 1,000,000,000,000,000 bytes). In addition, between April 2007 and October 2007 backup volumes were increased by a one petabyte per month with minimal investment. The released capacity created by that optimisation work will be used to accommodate growth without significantly increasing infrastructure, power, and space requirements.

Having consolidated the estate, the planned introduction of fully automated back up processes using new technologies will enhance service levels at reduced cost and mitigated risk for BT and its customers. That new architecture will enable BT to adopt its lights-out support model. The accent will shift to over 90 per cent of BT's data centre operations team becoming mobile (whereas 50 per cent were permanently resident in data centres previously). BT will also be able to use that highly flexible resource to offer its clients either a better support service or full outsourcing deals.

Another advantage of the transformed infrastructure is that class-leading disaster recovery capabilities will no longer see tapes physically transported for storage. Instead ultra-high-bandwidth optical fibre links between data centres, using DWDM (dense wavelength division multiplexing) technology, will enable mission critical data to be stored off-site in more than one place in real time. By so doing, BT is improving the resilience of its core systems infrastructure (already, obviously, carrier class) and better mitigating operational risk for closer regulatory compliance.

As well as those powerful business outcomes, environmental benefits will flow too. Reduced and more efficient back up equipment has a lower carbon footprint, and travel demands are being lowered with far less people commuting to data centres. This more than offsets the on-demand trips of the fewer mobile staff, which in many cases are obviated anyway by the automated and highly reliable nature of the transformed infrastructure.

“Through our partnership with GlassHouse Technologies,” concludes Harkeeret Singh, “we are getting closer to achieving our vision of automated, standardised, and highly efficient back up services for both internal and external clients. The programme is also improving our business sustainability by, for example, cutting down on travel and reducing the amount of hardware consuming power and requiring cooling.”

Business and environmental benefits

The key advantages of BT's strategic approach to data backup are:

- Industry best practice back up success rates, together with orders-of-magnitude decreases in fault levels
- Reduced costs and better service to internal clients, with the option to extend those benefits to external customers
- Step change improvements in already-carrier-class core systems resilience, leading to lower operational risk
- Reduced environmental impact with less staff travel, and a lower carbon footprint from more efficient equipment

