

HM Revenue & Customs

Infrastructure-as-a-Service (IaaS) transforms HMRC's UK operations



The challenge

HM Revenue & Customs (HMRC) was formed following the merger of the Inland Revenue and HM Customs & Excise Government departments. It is responsible for the administration and collection of taxes including income tax and inheritance tax.

Other aspects of the department's responsibilities include National Insurance contributions, the distribution of child benefit and some other forms of state support including the Child Trust Fund, payments of Tax Credits and the enforcement of the national minimum wage. HMRC employs around 70,000 full time equivalent staff across 400 offices and collected £468.9 billion for The Treasury in 2010/11.

In January 2004 the Inland Revenue, now HMRC, entered into a strategic outsourcing contract, known as Aspire (Acquiring Strategic Partners for the Inland Revenue) with Capgemini. Aspire is responsible for providing IT Services for every HMRC department and is constantly exploring new ways of minimising costs while boosting productivity. Fujitsu is the Aspire infrastructure partner.

In the present economic climate, the UK Government has made cuts in spending, a number one priority in order to return the country to a healthier financial state. It has set targets for each of its major Departments, including HMRC, and there is now significant pressure on all suppliers to seek ways of reducing costs. In 2009, the Aurora Programme was commissioned to focus the Aspire partners and suppliers on delivering a series of transformation projects that would enable savings of over £110m each year from 2011 to the end of the existing contract. As part of this programme, Aspire developed a private cloud computing service, known as S4, which capitalises on the existing Infrastructure as a Service (IaaS) model that had been in place for several years and deliver further benefits and cost saving opportunities for HMRC.

The solution

Aspire's S4 is a standardised, shared service that delivers the full scope of data centre services. It enables the standardised, automated, efficient and cost-effective procurement of streamlined processes by using a shared virtualised technology infrastructure to host multiple applications on a common platform. This means that S4 breaks the model where separate lines of business own their infrastructure, invariably leading to poor infrastructure utilisation. In contrast, the S4 model means that each department has no need to care about which infrastructure hosts their services.

THE CUSTOMER

- HM Revenue & Customs (HMRC) is responsible for the administration and collection of taxes in the UK and the payment of personal benefits.
- It employs around 70,000 full time equivalent staff across around 400 offices and collected £468.9 billion for The Treasury in 2010/11.



THE CHALLENGE

As a result of the current economic climate, HMRC needed to dramatically reduce costs in response to government demands. Technology expenditure was one area earmarked for cost reduction.

THE SOLUTION

Fujitsu had already deployed an Infrastructure as a Service (IaaS) platform which it extended into a private cloud solution that provided the flexibility and cost effectiveness anticipated by the business.

THE BENEFIT

- Reduced costs: A reduction in charges to HMRC
- Potential to extend to other areas: S4 gives Aspire and HMRC the ability to deliver similar solutions in the area of 'Cloud computing' to other Government customers
- Rapid provisioning: Faster delivery of standardised solutions using automated toolsets which will also drive down Fujitsu costs
- Greener computing: Lower energy usage translates into fewer carbon emission

The S4 private cloud offers a standard service catalogue, defining the computing platform and storage types available and a number of other service options such as increased security auditing and extended working hours support. Each of these is priced by a separate 'charge component' that are accumulated to calculate the overall service charge.

The charge for computing platforms is made up of two components: a 'payload' type that specifies the hardware, operating system, and (optional) application superstructure software; and a number of 'capacity units' that define the processing power and memory available to the payload.

The combination of these service features and the underlying technology, supported by a central service management organisation and virtual server technologies running on high performance shared platforms, make S4 a more innovative, comprehensive and cost efficient offering than many other cloud services.

In order to manage the S4 shared service, Aspire created a new team called the Shared Infrastructure Management Organisation (SIMO). This group acts as the front end in kicking off the S4 delivery cycle, with the top level functions of the SIMO being capacity allocation; provisioning new virtual servers; capacity and availability management; hardware and software installation; and the procurement of software licenses. The creation of the SIMO has supported the smooth transition to the S4 model and has been critical to the success of the project.

A new web-based portal, the Shared Infrastructure Management Portal (SIMP) went live in August 2010 to support projects embarking on the S4 delivery cycle. Users of the portal system, such as project managers and architects, can gain access to the necessary guidance and assistance to manage their planning, impact assessments and general delivery activities. Delivery projects that consume the S4 service do not need to make hardware purchases; they simply lodge requests for capacity and payloads from the SIMO. By eliminating these steps, the time and cost of delivery is reduced.

Ground-breaking delivery

The SAFE business service, the accounting framework for HMRC went live to the S4 service on 4th January 2011. SAFE is a truly groundbreaking delivery as it was the first live service in Government to be deployed based on Aspire's S4 service line using the Private Cloud technology.

The project commenced in early 2010 with the delivery of AIX and x86 virtual servers to the Development and Test environments and since the summer has delivered over 150 virtual servers to projects.

Thanks to the support of the SIMO, the New Capabilities Programme and a mix of teams in the Live Services space - SAFE was successfully transferred to its new S4 home and live services delivered to HMRC as of January 4th 2011. Testing time-scales and other challenges did not detract from Aspire achieving another major delivery to time and within budget.

Dave Buckley (Head of SIMO) and Simon Johnson (New Capabilities Project Lead) point out that success was due to a whole mix of teams in Live Services, Project Management, Strategy and Architecture and SIMO collaborating and working well together that made this achievement possible.

Note

S4 uses leading edge technologies to deliver virtual server infrastructure in AIX, Windows and Linux environments. These technologies allow Aspire to deliver standardised, automated, efficient and cost effective solutions to HMRC.

Impact

The introduction of S4 has realised immediate savings, with estimations suggesting it is up to 25 per cent less expensive than contemporary dedicated server offerings. These price reductions are achieved mainly through the standardisation of the hardware and software components, which in turn enable economies of scale, and the increased utilisation possible through large scale sharing of hardware capacity between multiple workloads.

On top of the reduced price, the new platform guarantees faster delivery and deployment of new systems, reduced sizing risk, easier maintenance of hardware, and simplified decommissioning.

With Aspire now providing a private cloud service for HMRC, it now opens the door to other government bodies – potentially enabling other departments to run their applications within the existing HMRC services, or by using the same technologies, support teams, skills and processes to deliver a separate government-wide service.

Many different applications that support government operations could be run under the Standard Shared Service model, meeting a requirement to deploy new services or refresh existing services in a way that provides best value for money. The commercial model is flexible, allowing departments to pay a monthly all-inclusive service charge, as opposed to having to invest in infrastructure up-front. The success of HMRC's S4 project has demonstrated that the private cloud can dramatically reduce costs, without compromising performance and as such is a template for best-practice government computing for the future.

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