

The new Fujitsu cloud platform delivers an increase in performance, leading to increased productivity and reduced user frustration. The Fujitsu cloud service is also much more resilient, ensuring optimal uptime.

HMRC's National Insurance and PAYE service has transitioned to a virtual estate, consolidating onto one 7.5TB database running on the Fujitsu private cloud platform.

At a glance

Country: United Kingdom

Industry: Public Sector

Website: gov.uk/government/organisations/hm-revenue-customs

Challenge

Based on legacy databases, HMRC's NI and PAYE infrastructure had become increasingly costly and difficult to scale. The 7.5TB of data, essential to approximately half of the UK government's £575 billion tax receipts, was fragmented across 36 instances, hampering HMRC's cloud strategy, and its ability in 'Making Tax Digital'.

Solution

HMRC chose Fujitsu, working in partnership with Accenture and Capgemini, to migrate 99 million accounts supporting up to 17,000 users to a new database, while at the same time consolidating it to a single instance and securely re-hosting it in a virtualised private cloud environment, without affecting service availability.

Benefit

- Ensures minimal business disruption and data quality thanks to Fujitsu and HMRC working to Agile principles to co-create custom tooling and a separate migration platform
- Increases geo-resilience and fault tolerance providing greater availability. The migration was largely seamless and took place over a single weekend
- Fujitsu's secure private cloud quickly adapts, scaling to HMRC's changing business requirements and demand

Customer

HM Revenue and Customs is the UK's tax, payments and customs authority, responsible for collecting the money that pays for the UK's public services and helping families and individuals with targeted financial support. With 50 million customers, 60 thousand staff, and £575 billion in tax receipts to collect, HMRC is in the middle of probably the biggest transformation in its history. Already one of the most digital organisations in the UK, its plans are much bolder: by 2020 it aims to be one of the most digitally-advanced tax authorities in the world.

Products and Services

- FUJITSU Managed Private Cloud Service
- FUJITSU Professional Services

Creating digital transformation

Within HMRC, NPS is the IT system responsible for National Insurance Contributions (NIC) and the Pay-as-you-Earn (PAYE) scheme, through which every salaried employee in the UK contributes tax directly from payroll. NPS is a core tax administration platform central to HMRC's digital transformation, and to deliver this, HMRC had to migrate away from its legacy database. This system had provided secure and reliable performance; however, it was difficult to scale, costly and locked the organisation to single vendors.

HMRC wanted to introduce a flexible, scalable, virtualised platform that could react quicker to changing business demands. HMRC asked Fujitsu to be one of its partners for this project.

In 2014, Fujitsu created a number of private new 'FAST' (flexible, agile, serviceable and transparent) services. These FAST services are a range of standalone virtualisation services within the HMRC private networks, capable of accelerating HMRC's transformation and supporting its digital vision. The use of FAST-P (platform) and FAST-DB (database) were chosen for the new consolidated environments.

Migrating a nation's tax database for individuals

Fujitsu provides a private, dedicated cloud developed specifically for HMRC and hosted on Fujitsu hardware. Duplicated across dual secure data centres for resilience and built on a VMware virtualised platform, the solution can rapidly scale up or down dynamically.

Fujitsu worked alongside Accenture and Capgemini to undertake a three-phase migration campaign. This collaborative approach between stakeholders, influencers and suppliers was critical to a seamless and successful migration.

The first phase concerned the Presentation Layer, followed by phase two, the Application Layer, both of which consume FAST-P, and finally phase three, Database Transformation and Data Migration using FAST-DB for which Fujitsu was the lead partner. The migration of this database tier is a ground-breaking transition for a database of this size – 7.5 Terabytes (equivalent to the paper produced from 375,000 trees). Over the course of a single weekend, HMRC and Fujitsu transitioned over 99 million accounts on 7,400 database tables, the largest of which contains 65 billion rows.

The database was transformed from a distributed solution to a single-instance, large-scale cluster database, employing management and automation software across dual data centres for improved business service RPO and RTO. The replication service for NPS to the Corporate Data Warehouse Service was migrated using tools supplied by the new database partner.

This migration was achieved using bespoke tooling developed specifically for this project, as the legacy database which was built up over many years was incompatible with commercially available migration toolsets.

The new platform ran in parallel for several months so that the teams could perform three separate 'dress rehearsals' to ensure everything was on track. After these had taken place and any issues had been ironed out, this large-scale database was migrated within 40 hours over a single weekend.

Increased performance and resilience at lower costs

The new Fujitsu cloud platform delivers an increase in performance, leading to increased productivity and reduced user frustration. The Fujitsu cloud service is also much more resilient, ensuring optimal uptime and enabling NPS to make changes to individual application layers without having to take the business service offline for maintenance activities. This flexibility helps the organisation meet its goals of digital availability.

At the same time, virtualisation allows servers to be introduced, scaled up or down, and switched off in a way that simply wouldn't have been possible with its legacy predecessor, offering a versatile platform which can be adapted to react to changing business requirements quickly.

Ultimately, the virtualisation of NPS is a key enabler for HMRC's Individual Tax Management Platform and a landmark project. It represents a major advance in enabling HMRC to deliver better value for money, will drive towards zero outages and support HMRC's transformation goals.

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