Dell solutions: enabling information-driven healthcare

As a professional working in the NHS or private healthcare, you will be more than aware of the importance of information to the successful delivery of healthcare and the role technology plays in bringing that information to life when and where it is needed.

What you may not know is that Dell has been ranked by Gartner as the No.1 healthcare IT services vendor worldwide for the last three years and has partnered with the NHS and private healthcare in the UK to deliver healthcare solutions and services for over 20 years.

With dedicated healthcare account teams and specialists across the country, we have been empowering healthcare staff and patients, connecting clinical communities and providing solutions that have enabled improvements in patient care. We understand both the challenges facing leadership teams within the NHS and private healthcare today and the technology solutions needed to overcome them.

At Dell we believe that better information drives better healthcare. To this end, we provide healthcare technology solutions that help to drive efficiency, maximise productivity and deliver information securely to the point of care. From market-leading personal computers and tablets, through leading edge networks and data centre solutions and on into the cloud, Dell solutions are being used across the NHS today. Our specialist end-to-end, turnkey or custom enterprise solutions and services are designed specifically for the unique needs of clinical workflow, including:

- Mobility
- Digital care records
- Governance and security
- Data management and big data
- Consulting services

We are also proud to be working in the healthcare environment with our partner Intel. Intel is committed to promoting and enabling open industry standards and interoperability, with the aim of delivering access to seamless technology that helps to scale solutions and make computing power more affordable, from new mobility solutions to big data analytics and advanced security.

Our shared vision and legacy of innovation provides the background for this guide, designed to give both an overview of Dell and Intel healthcare solutions and insights into the benefits they deliver to individual stakeholders within the healthcare environment. These solutions enable technology to deliver better clinical outcomes, easier IT management and the cost savings that can help to drive innovation. We know, of course, that each healthcare organisation faces unique challenges, and that one size cannot fit all. We hope, however, that this guide will serve to start a conversation that you find both revealing and insightful.

To continue the conversation, please visit Dell.co.uk/healthcare or call 01344 373 742.

Richard Rawcliffe
General Manager, Dell UK Public Sector
Digital care records
Enabling the delivery of a digital care record in a timely, secure and compliant fashion across multiple healthcare settings.

Governance and security
Ensuring that the advances in care enabled by the availability of data to all stakeholders are matched by secure governance and compliance.

Data management and big data
Helping organisations manage the explosion of data and gain meaningful insight from it to drive research and optimise the delivery of care.

Health consulting services
Enabling new, more efficient operational working practices across all staff groups, to save money, drive efficiency and improve patient care.
“Through strategic acquisitions we now deliver an end-to-end capability that is helping our healthcare customers to transform their organisations.”

Richard Rawcliffe
General Manager
Dell UK Public Sector
The Dell difference

The importance of technology in healthcare has grown exponentially over the last few years as the volume, complexity and significance of digital patient information has increased. IT professionals in the NHS and private healthcare are no longer in the business of just managing hardware or software environments, they are now key to the delivery of quality patient care.

To create truly information-driven healthcare, technology must be integrated into the healthcare ecosystem and adopted by the key stakeholders. Crucially, to drive this adoption, tangible benefits must be felt by patients and clinicians alike.

At Dell we believe there are three key areas in which information can drive improved healthcare:

Interconnecting clinical communities
Connecting clinicians in a healthcare community and ensuring they have access to all available relevant patient information, when and where they need it at the point of care, speeds-up healthcare delivery and increases patient satisfaction, compliance and outcomes.

Aggregating patient data
By gaining access to aggregated patient data, researchers and clinicians can drive knowledge and gain a better understanding of conditions and patient outcomes. This helps to shape best practice for patient populations and inform personalised care delivery based on individual requirements.

Empowering patients and carers
Thirdly, allowing patients to be connected to better information about their condition and current status can empower them to take some control over their own health, as seen particularly in the provision of Telehealth solutions in long term conditions such as chronic obstructive pulmonary disease (COPD) and diabetes. Putting some of the onus on the patient to collect their own data helps to educate them on their condition and empowers them to feel more in control, helping to reduce the incidence of hospital admissions.

At Dell we have a long history of working closely with NHS and private healthcare customers and we understand the high-level drivers of change within the environment. This extensive experience has given us unique insights into the challenges our customers face when transforming their organisations. Our strategy is differentiated based on an understanding of the importance of information in healthcare and a focus on practical innovation, efficient and affordable solutions and a superior customer relationship model.

We also understand that solutions must address not only the technology, but also the combination of people and processes that have to work together for our customers to:

Transform
Transform the delivery of healthcare solutions and accelerate adoption of new technology, from unified communications to the cloud.

Connect
Empower a mobile and agile workforce, connect clinicians, patients and care-givers and deliver the right information to the right place at the right time on the most appropriate platform.

Inform
Turn patient and other healthcare-related data into insights that improve patient outcomes. We work in areas such as human genomics, to help treat cancer patients and design patient-specific treatment regimens, and we aggregate patient data to enable more effective decision-making for commissioners.

Protect
Protect personnel and patient data, overcome evolving security threats and ensure compliance with legislation.

At Dell, together with our partner Intel, we are actively working with the NHS and private healthcare organisations across the UK to transform their organisations – driving up efficiency, increasing agility and helping to reduce costs. One of our key beliefs is that better healthcare starts with better information. On that basis, the products, services and solutions we provide to our healthcare customers are all linked to the need to deliver relevant information to the point of care, and to ensure that in this digital age, clinicians have access to the right information in the right place at the right time.

This guide outlines how you can leverage Dell end-to-end capabilities to address your own strategic challenges.
“We’ve been able to supplement our existing healthcare services and boost patient-facing time by 5 per cent with the Dell private cloud solution running Microsoft Lync.”

Jim Barwick
Executive Director of Transformation
Locala Community Partnerships
The challenge
Stimulated by consumer innovation, a demand for bring-your-own-device and the arrival of Microsoft Windows 8, healthcare organisations are considering the ways in which mobile solutions can improve productivity and drive operational efficiency, by enabling remote working and the delivery of information at the point of care.

For those organisations embracing mobility, the challenges that arise include identifying the best device for each setting, ensuring secure and compliant delivery of applications and data, optimising the applications for each device and keeping device management efficient and cost effective.

However, from a user perspective, the biggest challenge of all is simply getting access to information in a seamless and intuitive manner from anywhere, including the point of care.

The Dell solution
At Dell, to help organisations take advantage of mobility in the delivery of care, we have built proven technical architectures together with a range of repeatable consulting services that enable organisations to take a modular, flexible approach to building-out their mobility strategy.

The Dell solution combines a number of key technologies to deliver a connected workplace that reflects the needs of all stakeholders, including cross-function departments like HR, Finance and Facilities. These technologies include:

- Unified communications
- Mobility
- Identity and access management
- Cloud technologies
- Virtual desktop
- Workstations, PCs, notebooks and tablets

The partnership with Intel delivers the world-leading performance, battery life, manageability and mobility capabilities that allow clinicians to work more collaboratively and efficiently. At the same time, the Intel commitment to the development of mobility platforms within the healthcare ecosystem, with software providers in particular, is expanding the potential of connected healthcare into the home and community.

Using a highly collaborative approach, our consultants - many of whom have clinical experience - work with customers to:

- Identify and understand their current challenges and develop a realistic path to achieve their goals
- Reduce the risk, cost and time to implementation by leveraging the Dell investment in technical architectures and repeatable consulting services
- Offer a single point of contact for the entire solution - consulting, systems integration around business process, application architecture, infrastructure architecture, operations and management
How the Dell mobility solution works

The diagram below provides an overview of the kind of components that combine to help organisations take advantage of mobility in the delivery of care.

Data protection
Prevent data loss with Dell Data Protection Encryption solutions that allow IT teams to encrypt data accessed by devices in a fraction of the time and cost of similar products used in the NHS.

User and device management
With Dell Cloud Client Manager and KACE K3000, organisations can confidently:
• Manage and secure devices
• Configure and deploy apps
• Provide proactive reporting using the Dell suite of hosted and on-premises device management solutions

In addition the extensive partnership between Dell and the leading 3rd party MDM providers also allows NHS IT teams to maximise any existing investments.

Optimised for all client devices
The Dell Workspace desktop virtualization platform significantly reduces the cost and complexity of deploying desktop virtualization within the NHS across a range of hardware clients including touch-enabled devices.

Complimentary technologies such as application and profile virtualization ensure that users are able to access familiar systems in an intuitive way.

Identity and access management
Dell Quest One Identity and access management solutions simplify the process of giving employees the right access to critical information, handling identity management and access governance.

Remote working
Dell SonicWall secure remote access, wireless and firewall solutions enable clinicians and healthcare workers to get secure single site login (SSL) VPN access to key clinical resources from virtually any endpoint – including desktops, laptops, smartphones and tablets.
Solution benefits by department

Dell mobility solutions enable new, more efficient operational working practices across all staff groups to enhance clinical productivity and health information security.

Clinical
By making it easy for clinicians and nurses to access relevant clinical data and patient records on almost any device independent of location, the solution:
• Promotes the sharing of data across departments and sites, enhancing the ability to collaborate with remote experts for improved understanding of medical conditions and increasingly personalised patient care
• Enables a community of care with the ability to share patient data between clinicians, patients and carers
• Accelerates clinical decision-making by ensuring relevant information is available at the point of care

Operations
The solution provides operational flexibility, enabling healthcare organisations to evolve and meet their changing needs by:
• Accelerating the roll-out of working from home initiatives, driving down unnecessary overhead and facility costs
• Enabling community workers to update patient appointment notes while on their rounds, cutting out the time-consuming and costly requirement to return to base
• Improving patient flow by ensuring the right information is made available to the right person in the right place at the right time

Information management and technology (IM&T)
By incorporating the capabilities of cloud computing into a mobile framework, organisations are able to:
• Enhance their existing IM&T environment to support continued mobile adoption
• Improve mobile data security by removing the need to store information locally or on a transportable device
• Improve IM&T process and policy adherence
• Get more done, faster, and for less – by adopting a solution that maximises manageability and reduces operating costs
Taking a closer look

In order to provide you with as much information as possible about healthcare mobility, we have put together these resources for you to take a closer look.

**Discovery workshop**
Spend half a day with a Dell Healthcare Solutions Architect to brainstorm and blueprint your organisation’s unique needs and requirements and see how they can be mapped with Dell Mobility solutions. You’ll also learn from other trusts which have seen real efficiency results and cost savings.

Please ask your Dell Account Manager for details.

**Cloud case study**
Locala Community Partnerships improves healthcare services and increases patient-facing time with an innovative private cloud.

Read more.

**Healthcare mobility demo**
Visit the Executive Briefing Centre in Bracknell and see first-hand a demonstration of the healthcare mobility solution in action.

To schedule a visit please speak to your Dell Account Manager.
“The biggest benefit for clinical staff is having a single view of all the information they need pertaining to a patient’s care all in one place.”

Margaret Eccleston
Enterprise Content Manager, IM&CT
Alder Hey Children’s NHS Foundation Trust
Digital care records

The challenge
Many NHS and private healthcare organisations are faced with bringing together historic paper-based records with digital records and images which have proliferated across disparate systems. This proliferation results in information being unavailable for clinicians where and when they need it – whether in acute hospitals, care homes, hospices, social care environments or the patient’s home. The knock-on effects include delays to patient treatment, overtime payments and delayed discharge, which can be costly.

From an administration perspective, the proliferation of disparate healthcare records also brings challenges regarding duplication of data, data quality and the time it takes to access data.

Organisations are left balancing the tension between making records and data more accessible and ensuring they satisfy requirements for information governance including assuring audit and access trails.

The Dell solution
Dell is unique in bringing together an end-to-end process that stretches from clinical transformation services to the digitisation of documents, tiered storage architectures, application modernisation and the delivery of information to any end-user device in a secure and compliant fashion.

Ideal for the NHS, private hospitals and community partnerships of all sizes, the Dell solution integrates with all leading healthcare applications as a vendor-neutral archive. The solution eliminates the lack of interoperability between various departments and applications by consolidating the archive of medical contents into a single application-agnostic and patient-centric repository.

Delivered as on-premises storage, hosted cloud, private cloud or a hybrid approach, the solution takes into account:
- IM&T infrastructure
- Integration and collaboration
- Information governance
- Information management and reporting
- Clinical transformation and implementation services
How the digital care records solution works

The diagram below provides an overview of the components that combine to deliver an end-to-end solution.

Supporting exponential data growth
Unified, virtualized storage that scales for both capacity and performance enabling a standards-based data repository which consolidates the archive of medical content in a single application-agnostic and patient-centric repository.

Application as-a-service
This approach enables ubiquitous, convenient on-demand access to the appropriate applications and data, which can be rapidly provisioned to any approved device in any location.

Dell Clinical Cloud Archive (DCCA)
Cloud backup for archiving, collaboration, business continuity and disaster recovery.

Dell Clinical Collaboration Portal
Facilitates web access and distribution of clinical data across the medical enterprise as well as outside NHS trust boundaries if required, delivering:
- Image enablement of EPRs
- Sharing of patient records through a Health Information Exchange

Clinical transformation
The Dell Access, Design, Optimise (ADOPTS) methodology was developed by Dell clinicians and technical healthcare experts and is used to help organisations to implement a consolidated digital care record solution. Based on LEAN and Six Sigma principles, Dell transformation consultants utilise ADOPTS across all Dell technology solutions to combine the right people, processes and technology.

Access to digital care records
By combining the Dell Mobility solution with Dell Quest One Identity Management, users can get a consolidated view of the patient care records on their device of choice.
Solution benefits by department

A digital care record solution has been proven to deliver benefits that impact those in front-line patient care as well as their colleagues in information management and technology (IM&T), finance and operations.

**Clinicians**

By using a digital care record solution, clinicians can benefit in a number of ways, which include:

- Increased personal productivity by cutting wasted time with logins, waiting for access to the right applications or device
- Improved patient safety by having all the relevant information at the point of care
- Enhanced quality and speed of care through information sharing, driving improved patient outcomes

**Operations and finance**

A solution from Dell brings about operational efficiency, governance and financial benefits that include:

- Increasing staff productivity by eliminating costly delays and duplicate tests and/or procedures
- Streamlining patient flow by eliminating the delays in patient care caused by incomplete patient records
- Improving data quality and information governance reduces the risk of penalties, fines or legal action arising from non compliance, by ensuring policy-based automation and enabling much more effective search/discovery of patient records

**Information management and technology (IM&T)**

By providing an end-to-end digital care records solution from one responsible provider, Dell is able to deliver multiple technology and management benefits, which include:

- Reducing the number of data stores for ease and efficiency of support
- Providing unlimited scalability, which avoids full-scale upgrades and enables access by multiple systems independent of location
- Replication, automation and the utilisation of cloud technology simplifies storage management and eliminates repetitive maintenance on different storage systems and application silos
- Reduces time and cost of backup and data recovery, with distributed replication and automated backups
- Reduces total cost of ownership, by introducing storage de-duplication and intelligent tiering of data
Taking a closer look

In order to provide you with as much information as possible about Dell digital care record solutions, we have put together these resources for you to take a closer look.

**Discovery workshop**
Spend half a day with a Dell Healthcare Solutions Architect and participate in an interactive session discussing your needs relating to digital care records, including discussion of the known critical success factors, shared learning from other NHS deployments and indicative timelines and expectations.

Please ask your Dell Account Manager for details.

**Dell digital care records case studies**
Read how Northern Lincolnshire and Goole Hospitals NHS Foundation Trust introduced a more scalable, cost-effective storage platform to improve care and support the digitisation of patient data.

Download the PDF.
“The remote solution is saving our staff precious time. In the past, crisis workers had to travel to the locally held clinical notes before they could deal with a scenario appropriately.”

Tim Mullan
IP Telephony Systems Lead
2Gether NHS Foundation Trust
Governance and security

The challenge

As healthcare becomes more dependent on digital care records and patient data, organisations face the challenge of ensuring that clinicians and care providers are able to easily access this critical patient information at the point of care, in a secure and compliant manner. Any organisation managing personal patient data has a number of legal obligations to protect that information under the Data Protection Act (DPA) 1998 and the Freedom of Information Act.

The DPA, governed by the Information Commissioners Office (ICO), is set up to uphold rights to information in the public interest and has the power to levy fines against organisations that breach the DPA. With breaches that have led to fines in the NHS and in the fast-changing healthcare environment, security and governance solutions must be agile enough to adapt quickly to new demands and emerging security threats, whether from a compliance or a technology perspective.

The Dell solution

Dell healthcare solutions offer industry-leading, connected security solutions which reflect the needs of all stakeholders. With a unique blend of hardware, software, services and partners, Dell helps organisations to protect patient data whether that data resides in a data centre, the cloud or on an Intel-based end-user device such as a laptop or tablet.

As a member of the Intel Cloud Builders programme, Dell works closely with Intel, offering a wide range of technologies designed to ensure privacy and security while improving compliance. Intel hardware-assisted security features fight malware, build resilience and protect data and identity, while Intel-powered hardware integrates fully with key third-party security software solutions. Intel also offers specific security technologies to protect patient data on mobile devices and in the cloud.

Enabling innovation and standards-based interoperable technology, Dell and Intel give healthcare providers the flexibility to scale-up securely at a lower TCO, including system maintenance programmes, data centre solutions and development opportunities for new, lower-cost models of care.

A recent industry analysis* shows that server and data centre solutions over four years old stifle innovation, with operational and maintenance costs taking up some 74% of IT budgets, leaving just 26% for innovation and development. Against that background, Dell, Intel and Microsoft are working together to help providers to free-up operational cost overheads so that they can focus on developing new and improved models of healthcare delivery.

Organisations can take a flexible, modular approach to creating a bespoke solution by leveraging the investment made by Dell in proven reference architectures that include identity and access management, cloud and virtual desktop, mobile working, asset management solutions and reporting tools plus repeatable consulting services.

With a single contact point for the solution, including consulting, systems integration, application architecture, infrastructure architecture, operations and management, Dell is unique in enabling organisations to engage with one accountable partner.

Our collaborative approach ensures customers fully understand the requirements for all stakeholder groups while ensuring a secure, holistic and connected solution that:
• Minimises risk
• Reduces cost
• Accelerates time to implementation

How the governance and security solution works

The diagram below provides an overview of the components that combine to deliver an end-to-end solution.

Remote working
Dell secure remote access solutions enable caregivers to gain SSL VPN access with two-factor authentication to mission-critical resources from virtually any endpoint — including desktops, laptops, smartphones and tablets.

Security
Dell solutions for endpoint security streamline management while blocking annoying spam and malware, finding potential endpoint vulnerabilities and encrypting the enterprise data residing on endpoints.

Identity and access management
Dell Quest One Identity and Access Management solutions simplify the process of giving employees the right access to business-critical information, handling identity management and access governance.

VDI
Pre-integrated VDI systems from Dell help simplify deployment proof points:
• 5-fold faster time-to-value with pre-cabled, validated virtualization system
• 33% less administration time with integrated management consoles
• 75% reduction in physical server footprint
• 50% less power and cooling required

User and device management
With Dell Client Cloud Manager, delivering a fully managed service to:
• Manage/secure devices
• Configure and deploy apps
• Deliver proactive reporting and support
Organisations can also choose to adopt BYOD, and ensure:
• Compliance
• Deliver/revoke services
• Separated corporate and personal processes

Data backup and archiving
Enables data to be managed and secured directly to allow accurate copies of data to be retrieved should there be any data loss caused by system outage or failure.

Dell Wyse
Dell Wyse thin clients deliver a low-cost, PSN-compliant alternative for desk workers (reducing the costs).

On-premises cloud with application convergence
Enables ubiquitous, convenient on-demand access to the appropriate applications and data, which can be rapidly provisioned with minimal management effort to any approved device in any location. Mobile application delivery is simplified by combining:
• Mobile Device Management (MDM)
• Application virtualisation and streaming
• VPN access
• Virtual Desktop Infrastructure (VDI)
• Firewall

Mobile working
Dell SonicWALL Wireless Networking Solutions help mobile workers connect securely to the network via WiFi and 3G with an enterprise-class firewall/VPN gateway.

Data backup
Enables data to be managed and secured directly to allow accurate copies of data to be retrieved should there be any data loss caused by system outage or failure.

Dell Wyse
Dell Wyse thin clients deliver a low-cost, PSN-compliant alternative for desk workers (reducing the costs).

Remote working
Dell secure remote access solutions enable caregivers to gain SSL VPN access with two-factor authentication to mission-critical resources from virtually any endpoint — including desktops, laptops, smartphones and tablets.

Security
Dell solutions for endpoint security streamline management while blocking annoying spam and malware, finding potential endpoint vulnerabilities and encrypting the enterprise data residing on endpoints.

Identity and access management
Dell Quest One Identity and Access Management solutions simplify the process of giving employees the right access to business-critical information, handling identity management and access governance.

VDI
Pre-integrated VDI systems from Dell help simplify deployment proof points:
• 5-fold faster time-to-value with pre-cabled, validated virtualization system
• 33% less administration time with integrated management consoles
• 75% reduction in physical server footprint
• 50% less power and cooling required

User and device management
With Dell Client Cloud Manager, delivering a fully managed service to:
• Manage/secure devices
• Configure and deploy apps
• Deliver proactive reporting and support
Organisations can also choose to adopt BYOD, and ensure:
• Compliance
• Deliver/revoke services
• Separated corporate and personal processes

Data backup and archiving
Enables data to be managed and secured directly to allow accurate copies of data to be retrieved should there be any data loss caused by system outage or failure.

Dell Wyse
Dell Wyse thin clients deliver a low-cost, PSN-compliant alternative for desk workers (reducing the costs).

On-premises cloud with application convergence
Enables ubiquitous, convenient on-demand access to the appropriate applications and data, which can be rapidly provisioned with minimal management effort to any approved device in any location. Mobile application delivery is simplified by combining:
• Mobile Device Management (MDM)
• Application virtualisation and streaming
• VPN access
• Virtual Desktop Infrastructure (VDI)
• Firewall

Mobile working
Dell SonicWALL Wireless Networking Solutions help mobile workers connect securely to the network via WiFi and 3G with an enterprise-class firewall/VPN gateway.

Data backup
Enables data to be managed and secured directly to allow accurate copies of data to be retrieved should there be any data loss caused by system outage or failure.

Dell Wyse
Dell Wyse thin clients deliver a low-cost, PSN-compliant alternative for desk workers (reducing the costs).
Solution benefits by department

The Dell governance and security solutions offer an enterprise-class solution that ensures compliance with regulations, retains simple and efficient access for medical staff and remains easy for IM&T to manage.

Operations
Dell governance and security solutions contribute to streamlining clinical and administrative workflows through the accurate provisioning of applications and data, delivering benefits that include:

• Improved staff productivity, by freeing up the workforce to focus on service delivery and efficiency without the frustrations of legacy systems
• Enhanced compliance, with sessions no longer remaining open, patient data is kept secure at all times
• Reduce length of patient stay by ensuring all stakeholders throughout the patient pathway have appropriate and timely access to relevant patient information

Information management and technology (IM&T)
Dell governance and security solutions offer considerable advantages and operational cost savings for the IM&T professionals including:

• Matching employee roles and skills to the right technology - creating a digital identity accessible whether they are based in the office, at home or in the field
• Improving mobile data security by removing the need to store information locally or on a transportable device
• Improving IT process and providing a much more effective search/discovery process for patient records

Clinicians and community workers
Dell governance and security solutions deliver the benefit of rapid and simplified access to the most complete and up-to-date patient information at the point of care, delivering:

• Increased personal productivity by cutting wasted time with logins or waiting for access to the right applications or device
• Improves the efficiency of frontline service delivery workers, enabling community workers to access and update records on the move
• Faster user switching between devices using single sign-on to applications
Taking a closer look

In order to provide you with as much information as possible about Dell governance and security solutions, we have put together these resources for you to take a closer look.

**Discovery workshop**
Spend half a day with a Dell Healthcare Solutions Architect and participate in an interactive session discussing your needs relating to governance and security, including discussion of the known critical success factors, shared learning from other NHS deployments and indicative timelines and expectations.

Please ask your Dell Account Manager for details.

**Dell governance and security case studies**
View the video on how Oxford University Hospitals NHS Trust uses vWorkspace to achieve better patient care.

View the video.
“Clinicians will see greater stability and can treat patients more effectively because our storage will be highly available. With Dell Compellent, we can be proactive.”

Ian Alden
Server Manager
Cwm Taf University Health Board
Data management and big data

The challenge

Healthcare organisations face the dual challenge of managing a data explosion exacerbated by the transition away from paper records and finding a way to analyse the data for research and pre-emptive care.

The task is made all the more difficult by:

- Budget limitations or constraints
- Lack of physical space in current data centres, server rooms and branch offices
- Absence of policy and lifecycle management of data
- Data silos and legacy information
- Reluctance to move data off-site

The relentless growth of unstructured and file data is accelerating the need for network file storage systems and organisations are confronted with several challenges:

- Data silos prevent easy access to vital business information
- Data migration, backup, and disaster recovery are complex, consuming administrative time and resources
- Meeting data growth by deploying more and more storage systems increases both the administrative burden and capital expenditure at a time when organisations need to run lean
- Traditional file systems have scalability limitations that make them unwieldy for organisations with rapidly expanding file data

The Dell solution

Dell has developed an extensive range of standalone products, pre-built technical architectures, use cases andrepeatable consulting services that enable a flexible, modular approach to building-out data management and data analytics strategy.

The Dell and Intel approach to big data enables end-to-end and top to bottom analytics – from edge device to data centre to cloud, and across compute, software and storage. Dell Intel-based platforms provide the performance, low latency and high throughput needed to handle large data sets and the wealth of untapped data that can provide improvements in healthcare delivery, patient outcomes and clinician training.

Read the Intel whitepaper:

Data storage

Traditional approaches to handling file data growth have proven to be costly, hard to manage and difficult to scale effectively and efficiently. Dell Fluid File System is designed to go beyond the limitations of traditional file systems with a flexible architecture that enables organisations to scale-out non-disruptively and allows them to gain control of their data, reduce complexity and meet growing data demands.

In addition, organisations can add the Dell Medical Archive Solution, which offers:

- Seamless integration with the organisation’s healthcare data environment
- PACS (DICOM), patient records and unstructured content management
- Self-replicating and self-healing storage infrastructure
- Scaling to billions of objects

Data integration, management and analytics

Dell can offer a broad platform of tools for data integration, data management and analytics that can be customised to your suit your organisation. You can implement the tools as a total package or implement modules as needed. The suite includes business and clinical intelligence, big data analytics, compliance and regulatory analytics, data management and informatics.

Whether you seek to improve patient outcomes, transform health delivery or improve financial performance, the Dell analytic tools can help you better understand and manage the complex relationship between patients, health outcomes and healthcare systems.
How the data management and big data solution works

The diagram below provides an overview of the components that combine to deliver an end-to-end solution.

Fluid data
Using the patented high performance and highly scalable Dell Fluid File System with best of breed technologies including industry-leading deduplication, compression algorithms, world-class virtualization and embedded system intelligence, the Fluid Data architecture allows for dynamic storage that delivers new levels of efficiency and agility.

Medical image store
A standards-based data repository enabling the consolidation of both clinical and non-clinical data including unstructured content from multiple sources. The store can be based in the cloud or on-premises with the ability to scale at the speed of the most demanding PACS system.

Data centre transformation
The Dell Healthcare services team help organisations transform their data centres and create IT efficiencies that enable an agile IT environment capable of supporting the needs of today’s IT users and ensuring that organisations are not held back by outdated IT processes.

Data analytics
With a choice of analytics platforms (including open source) running on standardised high performance technology, healthcare institutions can more economically make use of collected data to deliver far greater insight and intelligence into healthcare delivery, managing patient care, cost, and outcomes.

Dell Clinical Collaboration Portal
Facilitates web access and distribution of clinical data across the medical enterprise as well as outside NHS trust boundaries if required:
- Image enablement of EPRs
- Sharing of medical imaging data through a Health Information Exchange

Business intelligence consulting
Business Intelligence Consulting Services provides information management and data analytics services for private healthcare, NHS acute care, mental health, community care providers and the commissioning board, independent of any historic technology decisions.
By addressing both data management and data analytics, Dell provides a more integrated and joined-up approach which delivers relevant benefits across all stakeholder groups.

**Finance**
Dell data management and big data solutions deliver short-term cost reductions and future operational opportunities including:
- Elimination of siloed and legacy storage that is costly to manage and maintain
- Predictive modelling, enabling the optimisation of the workforce and processes — for example reducing average length of stay
- Reduction in associated costs including real estate and power and cooling

**Information management and technology (IM&T)**
Dell data management and big data solutions increase productivity of personnel and increase agility and responsiveness to the organisation with benefits including:
- Reduction in the time and resource required to ensure data is safely backed-up
- Reduction in the in-house skills needed to manage and maintain multiple, disparate systems
- Robust data lifecycle management policies which ensure that less utilised data is archived onto less costly storage platforms, plus discovery of patient records

**Clinicians and community workers**
Dell data management and big data solutions enable advances in research and patient outcomes through:
- Providing aggregated data for analysis from across previously siloed data sets
- Delivering increasingly granular modelling of patient data
- Enabling the delivery of evidence-based medicines, rather than running the traditional model which is costly and slow
Taking a closer look

In order to provide you with as much information as possible about Dell data management and big data solutions, we have put together these resources for you to take a closer look.

**Discovery workshop**
Spend half a day with a Dell Healthcare Solutions Architect and participate in an interactive session discussing your needs relating to data management and big data, including discussion of the known critical success factors, shared learning from other NHS deployments and indicative timelines and expectations.

Please ask your Dell Account Manager for details.

**Dell governance and security case studies**
Cwm Taf University Health Board adapts its IT infrastructure and maximises uptime with help from Dell.

Learn more.
With a large team of dedicated NHS solution deployment specialists, Dell is the core infrastructure provider to almost half of all NHS Trusts.
Dell health consulting services

Healthcare organisations worldwide work with Dell to implement new healthcare and clinical systems which advance care quality and patient safety goals. Ranked by Gartner¹ as the No.1 provider of Information Management and Technology (IM&T) services in worldwide healthcare, Dell provides desktop, enterprise and cloud services in addition to professional and consulting services for clinical systems implementations. Dell consultants include strategic and operational leaders as well as technologists and consultants from frontline healthcare roles, such as physicians, nurses and other health professionals. With such rich clinical expertise, our consultants ensure measurable results in areas such as:

- Application implementation and optimisation
- Improving throughput, efficiencies, and care delivery
- Clinician adoption of technology
- Improved patient satisfaction

Our UK experience — achieving success for your organisation

Dell consultants have managed the delivery of programmes and projects across all healthcare settings and the resulting insight ensures that our professional services team delivers sustained success for customers by combining experience with proven healthcare-specific delivery methodologies.

Dell ADOPTS transformation methodology

Transformation is a process, not a project, requiring ongoing involvement and time investment by stakeholders. It supports quality, safety and efficiency and must align with continuous improvement across the organisation.

Our own Access, Design, Optimise (ADOPTS) methodology was developed by Dell clinicians and technical healthcare experts to address diverse clinical transformation situations and help providers improve healthcare for consumers and clinicians. The integrated ADOPTS framework is a standardised, flexible, and repeatable framework for all engagements:

- ADOPTS ensures that technology remains the enabler of change. Based on LEAN and Six Sigma principles, Dell transformation consultants utilise ADOPTS across all Dell technology solutions.
- By combining the right people, processes, and technology, we can help your organisation achieve a successful, value-driven approach to enable the effective use of technology and manage organisational change.

Dell PM3 Project, Programme and Portfolio management methodology

The Dell Project, Programme and Portfolio management methodology (PM3) is our guideline throughout the project lifecycle and is aligned with the PMI Project Management Body of Knowledge (PMBOK). PM3 ensures delivery across technology initiatives and our experienced PM3 consultants simplify healthcare technology projects, delivering clear business benefits:

- Provides leadership, visibility and governance that help to increase expertise, consistency and synergy in project management practices, addressing the people, process and tool aspects of project delivery
- Enables continuous monitoring of projects through quantitative, early warning indicators that project managers and the Project Management Office can use to proactively identify and minimise negative impacts

Contact the Dell healthcare team

Central England
Gavin Stothart (External Account Manager) 07715 061 974 gavin_stothart@dell.com
Alexa Berg (Internal Account Manager) 01344 378 205 alexa_berg@dell.com

East Midlands, Yorks & Humber
Phil Gardner (External Account Manager) 07802 595 360 philip_gardner@dell.com
Rob Mitchell (Internal Account Manager) 01344 373 466 rob_mitchell@dell.com

North London & East Anglia
Gary Fincham (External Account Manager) 07739 322 524 gary_fincham@dell.com
Adam Stolarski (Internal Account Manager) 01344 373 430 adam_stolarski@dell.com

Northern England
Mark Shaw (External Account Manager) 07717 156 943 mark_shaw@dell.com
Renato Petrone (Internal Account Manager) 01344 373 262 renato_petrone@dell.com

North West & West Midlands
Steve Taylor (External Account Manager) 07802 594 599 steve_taylor@dell.com
Lisa Paik (Internal Account Manager) 01344 373 547 slisa_palk@dell.com

Scotland & Borders
Ross Chassels (External Account Manager) 07717 156 753 ross_chassels@dell.com
Vicky Frazer (Internal Account Manager) 01344 373 617 vicky_frazier@dell.com

South Central
Natasha Davies (External Account Manager) 07802 595 364 natasha_davies@dell.com
Rob Mitchell (Internal Account Manager) 01344 373 466 rob_mitchell@dell.com

South London & South East
Kristian Biddles (External Account Manager) 07802 595 355 kristian_biddles@dell.com
Tim Lawrence (Internal Account Manager) 01344 373 439 tim_lawrence@dell.com

South West & Wales
Natasha Davies (External Account Manager) 07802 595 364 natasha_davies@dell.com
Shanon Parlour (Internal Account Manager) 01344 373 752 shanon_parlour@dell.com

Independent Software Vendors (ISVs)
Kevin Evans (External Account Manager) 07802 594 809 k_evans@dell.com
Steve Moors (Internal Account Manager) 01344 378 892 steven_moors@dell.com

Life Sciences
Stephen Hewitt (Account Manager) 01344 373 420 stephen_hewitt@dell.com

Management Team
Gary Brks (Director Healthcare and Life Sciences) 07920 765 427 gary_brks@dell.com
Amanda Brierley (UK Internal Sales Manager) 07717 156 797 amanda_brierley@dell.com

Useful Numbers
Healthcare Sales 01344 373742
Part Sales 01344 373499
Technical Support 0870 908 0500
Customer Care 01344 373199
For specific contact details please refer to the list opposite.