

↘ Cisco in Defence



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High performance
requires preparation,
knowledge and
commitment.

Is your network
optimised to deliver
information
superiority in
the harshest of
conditions?





Our Mission

To deliver world class communication solutions and leadership, in order to help enable successful operations across the UK Armed Forces and security agencies through:

- ▼ Deep understanding of operational drivers
- ▼ Unparalleled investment in innovation
- ▼ Genuine and enduring commitment to the MOD

Our message

Cisco believes that delivering battle-winning technology to our Armed Forces is possible if we adopt COTS wherever possible, bespoke design only where necessary, and seize the integration and innovation opportunity in open standards to drive cost down and create real pace in the equipment programme.



Hugh Eaton OBE, MA
UK Defence & Intelligence Director

The considerable demands that the Government and nation place on the Armed Forces show no signs of easing. The continued use of the UK Defence community as the most visible lever of national power in an uncertain world ensures increasing demand for rapidly delivered, coherent capability solutions.

At Cisco, we understand the capability drivers, the procurement challenges and the budgetary constraints that determine how we can most effectively support the MOD and our Defence industry partners both at home and abroad. At a time when financial pressures and operational demands are increasing, it is clear we and our partners need to answer the call from the Defence Secretary, the Defence Board and others to provide an engaged and intelligent Defence industry response.

Cisco's response comes in the shape of increased research, resources and investment that address the Defence environment's challenges by leveraging global best practice and rapidly adapting successes to meet the needs of the Armed Forces. As a Defence Mission Partner, we already provide a major part of the network that supports activity and operations both in the UK and abroad. We design and deliver battle winning solutions that are easy to integrate, simple to manage and provide true through-life value. The pages that follow describe examples of that work and illustrate potential solutions in which we are investing to drive capability forward.

Moreover, our presence across Government and the security and intelligence agencies provides additional coherence and credibility to our support for the MOD. Therefore, we look forward to further discussions across the Defence community to find new ways in which the Cisco family of 65,000 people and an annual R&D investment of £2.5bn, can continue to support the UK's service men and women.

We look forward to working with you, and wish you every success in the joint endeavour of supporting our Armed Forces.

↘ World leader
in intelligent-
networking
technologies



▾
You know how
many tanks and
aircraft you have,
how are you using
your network to
improve situational
understanding?

We can support the MOD in delivering the full potential of FCN through an open approach that integrates across Government and is designed for innovation, delivering the connectivity our Armed Forces need to succeed.

Leading the field in global defence

Cisco recognises its responsibility to keep the value of capability solutions high, and the cost low. So, in addressing any capability question, we can use our own information and knowledge management systems to locate, review and consider a proven solution from our experience elsewhere in the world.

As a leader in intelligent-networking technologies and with long-term relationships with governments and the Defence industry around the globe, Cisco's international service and support reaches from fixed home to remote regions around the world, including network support to deployed forces in Afghanistan and Iraq.

Our experience is drawn from a global network of defence communities that we support:

Global defence and intelligence community

Our work with various armed forces around the world, in particular the US DoD, allows us to pull through many proven, relevant and highly effective solutions without passing on R&D costs to the MOD. Equally, our familiarity with EU, NATO and UN forces means that we can rapidly deliver tried and tested capabilities that have successfully been implemented by other coalition forces.

UK cross-Government community

Interoperability with other Governmental departments is a fundamental requirement of many Defence programmes going forward. Our footprint across UK Government departments allows us to link capability that underpins the comprehensive approach, and can deliver more connected and coherent inter-agency operations.

Global public sector community

Our investment and coverage in the UK public sector helps us offer highly relevant experience and solutions from areas such as the NHS and the education sector – illustrating the latest proven capabilities we can provide for the Defence Medical Change Programme and the implementation of the Defence Training Review.

In addition, our Homeland Security solutions, in use with the Emergency Services, SOCA and Special Branch, have a close correlation with other Defence programme objectives. Interoperability with these organisations is increasingly important, and sometimes a pre-requisite, so being able to offer standards-based solutions that are easy to integrate within the MOD's overall architecture provides clear value.

We are also a major provider of network and communication solutions for the US Federal area, as well as equivalent bodies across the world, and we can use our own information management systems to locate and review how similar challenges have been successfully resolved elsewhere.

Global private sector community

Increasingly, UK Defence leaders are looking at how the MOD can bring in best practice from the private sector. Our financial sector clients, such as Goldman Sachs and HSBC, have similar security and latency challenges as defence and, while they would not claim (nor would we) that anything as important as the life of a Serviceman or woman is threatened in their business, billions of pounds can be at stake. We work with them to provide capability that helps protect critically important assets in an aggressive and highly demanding environment.

Working with the likes of Tesco and BP may not appear to be relevant to our capability in Defence, but the world-leading asset management, logistic control and operation solutions we have realised with them enables us to play a major role in supporting Defence programmes right up to the front line.



↘
Cisco's end-to-end
voice, video, data and
mobility solutions
enable faster, more
agile deployment and
greater collaboration
in defence missions.

Cisco Capital provides Defence Leaders and Industry Partners with the chance to seize the technology and capability opportunity – and be supported by us in the funding of that opportunity.

Endurance: the MOD cannot afford to partner with Defence Industry firms who may not weather the market storms. Cisco offers TLCM support and the pedigree and financial strength to back that up – for the long haul.

Driving down costs and protecting investment

Cisco recognises the MOD's focus on reducing capital and operating costs – and we help achieve this in a number of ways.

We actively support the adoption of Commercial Off-The-Shelf based solutions (COTS) wherever possible. Rather than increase costs and time by building bespoke solutions, we help leverage COTS solutions that deliver proven functionality, and can enable MOD clients to benefit from economies of scale and reduced unit cost. Moreover, ongoing operational costs associated with running the solution can be reduced as there is a well established skills and knowledge base around the offering – unlike bespoke solutions.

In addition, Cisco protects your investment with our approach to Through-Life Capability Management (TLCM). This solutions-led approach, backed by our strong architectural vision, allows us to deliver open, flexible platforms to our Defence clients. Adopting such an architectural approach means that even though individual elements within the solution may change over time, the overall solution, and the capability it delivers, will be constant throughout the life of the programme.

↘ Cisco as the mission partner of choice

Cisco's work as a Mission Partner within the UK Armed Forces and associated organisations is extensive and broad ranging. We are helping deliver solutions based on the Service-Oriented Network Architecture (SONA) approach, advising in the European Union and NATO area, assisting industry partners with systems-of-systems design and providing consultancy drawn from experience gathered from global enterprises and other defence organisations.

We are the key intelligent-network technology behind DII; provide end-to-end architecture and risk-assurance consultancy to the Aircraft Carrier Alliance (ACA); deliver the mobility services at the heart of Falcon; and advise on how Skynet 5 should migrate from legacy technology to an open-platform standards-based IP solution ready for future development.

We continue to deliver through DFTS, JOCS, RN-CSS, Bowman and Cormorant, as well as the other ISTAR programmes – a number of which connect into our extensive and growing programme activity in related Governmental departments.



↘
They have the
weapons, water and
rations to survive.
Do they have the
information they
need to succeed?

Cisco Networking Academy Programme is a comprehensive e-learning programme that enables students to develop valuable information and communication technology skills for increased access to opportunities in the global economy. By partnering with public and private sector organisations, the Networking Academy has grown to help 600,000 students each year in more than 160 countries. The UK MOD has several Net Academies providing globally recognised Cisco qualifications to the Armed Forces today.

Cisco architectures, such as the Cisco Open Platform for Safety and Security (COPSS), provide an integrated approach to sensors (motion, video and CBRN), surveillance, C2 and unified communications, offering defence and security organisations remote command and control of key locations and events.

Advanced and emerging technologies

Cisco's Global Government Solutions Group adapt the latest technologies from across industries and sectors to equip our Government partners with the insight and capability to succeed. Solutions such as WebEx and Cisco TelePresence can allow leaders to operate in new, improved and cost effective ways, and to push beyond the currently accepted limitations for Command and Control.

Our annual investment means that we can bring incredible insight and ideas to the MOD. We work with policy and implementation leaders to inform capability development and programme delivery with an understanding of the 'art of the possible'. We also provide comprehensive life-cycle support for our full portfolio of technologies through the Cisco Services organisation.

Industry leadership through Cisco consultancy

Cisco is committed to the UK Defence effort. We understand and support the UK MOD Defence vision and aims and have been pro-active in building a new set of strategic relationships across the UK defence, security and intelligence space. In order to realise the stated aims of the MOD to exploit technology and better understand global technological drivers and dynamics, we are working with the European Commission, NATO and MOD leadership to share experience.

Having advised on and supported the Defence Industrial Strategy (DIS) and the Defence Technology Strategy and Plan, we are further enabled by the nature of our partner delivery strategy, which allows us to provide independent thought-leadership, architectural consultancy and design advice. In addition, we provide support and briefings to leaders in the defence and security fields, as well as to our major Defence Integrator and Service Provider partners.

↘ The Cisco Engagement Model

Cisco has adapted its operating model to reflect the MOD's desire for a stronger, more consistent and more coherent relationship with industry leaders. In response to recommendations from the Minister for Defence Procurement, the Government CIO Council, and other senior contacts in the MOD and across Government, we have set out a new, three-point strategy for engaging with UK Defence and Intelligence:

- support defence decision makers through our footprint as the 'nerve centre' of communications
- deliver innovation through advanced and emerging technologies
- improve the pace of delivery in defence programmes through global best practice.

Cisco the 'nerve centre'

As programmes across the MOD equipment capability move to an Internet Protocol (IP) platform, Cisco is shouldering its responsibility to enable and improve capability throughout the MOD with more intelligent technologies. Our 20 years' experience and £2.5bn annual R&D investment will continue to ensure the range, quality and value of our foundation solutions. By working with Cisco, the MOD could benefit from:

- rationalised infrastructure based on proven performance, reliability and security
- award-winning consultancy and support services that can help the MOD get the most out of its investment
- ongoing investments in R&D initiatives that benefit our Armed Forces
- sustained value with upgradeable, enduring, standards-based solutions
- best practice based on proven, successful network deployments that deliver today.

Did you know?
Intelsat, in partnership with Cisco, plans to launch the first Internet Routing In Space (IRIS) satellite in early 2009. It's set to bring IP connectivity into space, integrating satellite systems and ground infrastructure for military and commercial users who need anytime, anywhere IP-based data, video, voice and mobile communications.



Capability Drivers

Cisco is firmly committed to working with the MOD and partners to help deliver capability across the defence sphere.

Our end-to-end offering means we can provide a single source of networking solutions that enable the delivery of innovative and highly secure converged services to personnel – whether in fixed locations, deployed areas or the battlespace.

Driving innovation

Cisco recognises that the MOD wants to harness innovation wherever possible and is well placed to support and collaborate in this.

We support the MOD's open innovation policy and are fully committed to applying innovation in industry, regardless of where it first occurs.

In practical terms, this means we innovate to meet the specific needs of defence, but also look at applying the cutting edge solutions we are developing and deploying in the commercial sector to the defence industry – enabling the effective delivery of new capabilities and driving down costs.

We pride ourselves on being a pioneer in the market – demanding and delivering innovation:

Internal development

Our dedication to emerging technology is proven by our £2.5 billion annual R&D investment. Examples of progressive technologies we have recently developed include:

▾ **Cisco TelePresence;** advanced high definition video conferencing that makes users feel as if they are at the same table with people in remote locations thousands of miles away

▾ **Cisco IP Video Surveillance;** enabling video to be accessed at any time from any place, enabling real-time incident response, investigation and resolution

▾ **Cisco Digital Media Systems (DMS);** digital signage that can be remotely updated to distribute and deliver secure communications in real-time to multiple locations

▾ **Cisco Mobile Ad-hoc Networks (MANET);** providing a wireless, high capacity networking environment where there is no pre-existing network, such as the furthest edges of the battlespace.

Acquisition

We have accelerated the development of new capability and supported further innovation in defence by acquiring over 100 companies in recent years. Each acquisition has brought additional expertise, intellectual property and advanced our offering to the benefit of our clients in the defence sphere and across industry.

Collaborative partnerships

We fully recognise the value of working closely with partners, such as DIs, to promote innovation that brings shared benefits to all parties – and furthers our ability to deliver capability within the Defence sector.

In the past 12 months, we have signed Memoranda of Understanding (MOU) with several key DIs. With peer-level partner organisations, we also deploy defence solutions and develop solutions models, such as the Secure Information Sharing Application System (SISA). This system, a COTS solution, breaks through information-sharing barriers, helping agencies to communicate and collaborate while protecting sensitive internal content.

Capability Drivers



The live, face-to-face meeting experience with Cisco TelePresence 3000



Cisco TelePresence drives business management. 2nd PUS, Sir Ian Andrews, and DG Info, John Taylor, discuss business over Cisco Telepresence in an MOD showcase.



Cisco TelePresence operating over satellite to bring soldiers in Fallujah and Kirkuk and their families 6000 miles into the same room.

Did you know?

Cisco TelePresence, our high definition video conferencing solution, has been deployed by the US Army to boost the morale of serving troops. It is enabling families to communicate with their loved ones serving in action, using Cisco TelePresence Suites based in WalMart Stores in the US.

Cisco TelePresence has real potential to transform communication in Defence – reducing the need for face-to-face meetings and the security risks involved. Potential applications include operational and logistic planning meetings, intelligence briefings, media and PR briefings and specialist medical consulting.

Delivering end-to-end solutions

Our broad portfolio brings together best-of-class technologies, providing an end-to-end network solution to the MOD. Our offering includes:

- ▾ **Core technologies;** the industry-leading foundation technologies that create intelligent, integrated networks
- ▾ **Data centre;** a network platform that unifies multiple data centres enabling the delivery of a more resilient, robust and forward facing infrastructure
- ▾ **Unified Communications;** users can communicate and collaborate regardless of their location, using the most appropriate medium
- ▾ **Wireless and mobility;** extending the reach of the IP network, enabling the delivery of voice, video and data services
- ▾ **Security;** protecting critical assets through self-defending networks
- ▾ **Emerging technologies;** driving innovation through the likes of Cisco TelePresence, Video surveillance, DMS and MANET
- ▾ **Real-time engagement;** conduct data conferences over the Internet, share web-based documents and work-spaces using WebEx

Crucially, our end-to-end offering can reduce integration risk and help accelerate the deployment of solutions.

An end-to-end solution from Cisco can help simplify management and cut total cost of ownership. This avoids having to face the cost, complexity and skills challenges of managing and supporting multiple vendor technologies. It also reduces the training burden and ongoing product support fees – representing significant operational expenditure savings.

Cisco's Environmental Credentials

Cisco commitment to the environment includes:

- ▾ Compliance with relevant environment legislation to meet customer and community needs and expectations
- ▾ Continual improvement of our environmental management system
- ▾ Implementing innovative programmes to increase energy efficiency in our operations, reduce waste, and help protect the environment.

Cisco has also developed a range of products that could help contribute towards a more sustainable MOD. For example:

- ▾ In the data centre, Cisco Service-Oriented Network Architecture (SONA) operates at the application and collaboration layers to help keep electricity consumption down
- ▾ Unified Communications provides a common resource for voice, messaging, video, web-conferencing and shared applications, which can reduce an organisation's carbon footprint by reducing travel
- ▾ Cisco TelePresence provides a unique "in-person" meeting experience and delivers real-time, face-to-face interactions between people through fixed cameras and large screens positioned at eye level to create the illusion of presence

For Cisco, green IT is not just about individual products or solutions – it's about transforming the business ecosystem for the future

Capability Drivers

Enabling truly mobile operations

Cisco is actively involved in extending the reach of the IP network beyond fixed locations to the deployed space and battlefield.

We provide many solutions that enable enhanced mobility, from Fixed Mobile Convergence (FMC) in the Unified Communications domain, to wireless mesh technologies, which are capable of rapidly providing coverage to large urban areas.

We are committed to innovation in the field of mobility – making considerable investment in the development of emerging technologies, such as Mobile Ad-hoc Networks (MANETs), which are set to deliver rapidly deployable, fast converging IP infrastructures in any environment.

Hand-in-hand with our investment in mobility technology, we are also driving innovation in bandwidth optimisation – to help ensure effective communications even where network capacity is limited, as can be common in the battlespace.

Interoperability

Open standards facilitate integration with traditional systems and applications from other coalition partners. A wide variety of custom and off-the-shelf applications can be run over a unified network infrastructure, rather than having to build special-purpose applications for special-purpose networks.

One example is the recent development of the Combined Air Operations Centre (CAOC), developed by the Royal Australian Air Force. The CAOC controls the operational management of an air campaign. The success of the CAOC lies in its interoperability, as it must accept data from multiple sources. During the Australian Air Force's Operation Pitch Black, this meant that staff in the CAOC at Glenbrook could talk from a PC client or Cisco IP phone to aircraft thousands of miles away.

Accelerating convergence

Internet Protocol (IP) has become the worldwide communications medium of choice, enabling data, voice and video to converge on a single network. In Defence, this makes incompatible communications compatible, and helps promote richer communication and collaboration between personnel, joint forces, coalition partners and civilian agencies.

However, at Cisco we recognise that with convergence, network reliability becomes even more critical to operations. The platform must continue to deliver capacity, resilience and quality of service, prioritising bandwidth for time-sensitive applications where appropriate. It must also extend beyond the fixed environment to the deployed space and the battlespace.

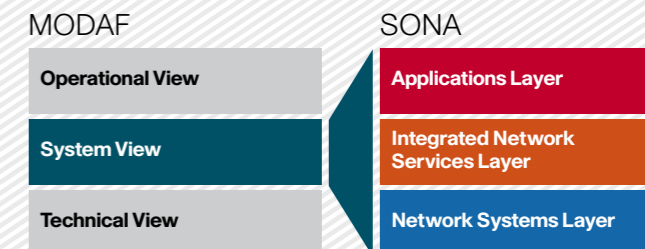
Cisco solutions are designed to deliver on all these fronts. Every day we successfully deliver capability and expertise via the IP platform for our clients across the world. Our commitment extends to running our own business on these converged technologies.

Network extending with MANET
Mobile Ad-hoc Networks help enable the delivery of the right information at the right time by extending the Global Information Grid to where it's needed most – at the tactical edge. For instance, thanks to MANET, Unmanned Aerial Vehicles could transmit real-time surveillance video back to handheld devices on the front-line for critical decision-making.

MANETs are found in several major developmental military communications programmes including:

- ▾ Future Combat System
- ▾ Warfighter Information Network-Tactical (WIN-T)
- ▾ Joint Tactical Radio System (JTRS)
- ▾ Transformational Satellite Communications System
- ▾ Mobile User Objective System programmes

The Cisco Service-Oriented Network Architecture



Architecture

An architecture for tomorrow, delivering today.

At the information systems level, defence organisations are working to realise next generation military capabilities by tightly integrating application and communication services and making them available throughout the operational environment. A Network Architecture is the fundamental framework that serves to align the services of the IP network platform with the capability requirements of the defence mission.

The Cisco Service-Oriented Network Architecture (SONA) is an architectural model for connecting network services to applications in order to deliver capability. This approach maps across to MODAF to help architects and engineers build reliable, scalable, and highly secure services-based communications infrastructures that can be easily replicated for simplified deployment. In planning for future threats, Cisco's SONA helps deliver agile network-based capabilities that are designed to be flexible and robust enough to support the ever evolving defence mission.

MOD benefits:

- ▾ Improved TLM, and reduced costs through standards-based, open integration
- ▾ Quicker decision making from agility within an intelligent network
- ▾ Highly secure user and device mobility for access to all resources, in a timely fashion
- ▾ Convergence of radio, voice and video communication onto a single network
- ▾ A foundation for effective cross-collaboration across multi-national forces

Cisco Lifecycle Approach to Service and Support



Consultancy



Cisco Services can support you and your network infrastructure through an integrated portfolio.

Top 10 reasons for choosing Cisco Services

- Direct access to Cisco expertise via our Developed Vetting (DV) cleared staff
- In-depth understanding of the public sector
- Insight into best practice
- Faster deployment
- Reduced risk and improved security
- A range of engagement choices
- Proven consolidation and shared service delivery services
- Post implementation services to maximise return on investment
- Best of breed solutions from the Cisco ecosystem of partners
- Service assurance to proactively help our customers achieve their objectives

➤ **Cisco Advisory Services;** can help to formulate and plan business aligned IT strategies. Once set, these objectives can be translated into deliverable architectures, deployment and migration plans that provide roadmaps for process and organisational change and governance programmes

➤ **Cisco Advanced Services;** professional services that enhance network performance and accelerate the time to benefit from helping the adoption of advanced technologies, through helping to build the business case to high-level design validation

➤ **Cisco Technical Services;** including network support services that offer traditional maintenance support plus proactive diagnostic capabilities designed to help gain greater network availability, lower operational cost and reduce risk

➤ **Cisco Remote Management Services;** providing comprehensive 24x7 remote monitoring issues resolution and day-to-day management

Whether you want Cisco to consult or help de-risk a specific project, or whether you want to integrate our consulting engineers as part of your day-to-day virtual team, Cisco Services can provide support across the entire network lifecycle.

A UK-based defence agency identified that a departmental project approach was adversely impacting the overall network. Working with its partner, Cisco Services – including its Network Optimization Service – provided the roadmap that improved network operations, reduced operational expense and developed a long-term advanced technology strategy aligned to organisational need.

Project Hercules
The German Armed Forces outsourced all of its administrative and logistics IT activities in 2007 in a network that connects 200,000 people and 1,750 sites.

Cisco is providing architectural and technical support to ensure the network is optimised and as effective and efficient as possible. This support has ensured both a robust network and opport unities for innovation.

Capability Platforms

Command & Control

“Cisco has supported the DII programme for many years and continues to deliver technologies to support the Defence mission”

Bob Quick, DII IPT Team Leader

Defence Information Infrastructure

The role of the Defence Information Infrastructure (DII) is to ensure delivery and support of a single information infrastructure to serve defence, replacing separate or legacy systems currently in use.

Mission

To deliver a secure and coherent information infrastructure at minimum whole-life cost whilst maintaining continuity of service.

Cisco Activity and Intent

DII is one of the largest IT programmes in Europe. Cisco provides the IP communications and storage infrastructure, enabling legacy & DII Future programmes to leverage the network as the platform and deliver user connectivity anytime, anywhere on any device.

In collaboration with DII delivery partner (ATLAS consortium), Cisco technologies are driving new capabilities, to help enable an intelligent, highly secure, adaptive, optimised infrastructure from business space to battlespace.

Falcon

Falcon is an IP based battlefield communication system that is designed to provide communications between deployed Headquarters in theatre. The core of the infrastructure is based around vehicles that will relay information between Army units. Cisco provides the network intelligence which resides inside the vehicles and sits at the heart of Falcon.

Overseas Example: TITAAN

An example of a Cisco based Mobile IP Brigade solution outside the UK is TITAAN which was built by the Royal Netherlands Army. The solution provides voice, data, and videoconferencing services to the Netherlands Army and Airforce. TITAAN development started in January 2001. The system became operational in October 2002 and was deployed in Kabul in support of the bi-national (Germany and Netherlands) NATO Rapid Deployable Corps in 2003.

MOD benefits:

Allows the MOD to introduce new capabilities in a cost effective manner at the points of technology refresh, which extends the life cycle of the programme

Miniaturisation and technology convergence, along with built-in voice, video and data services can help minimise cost, weight, power, and space requirements

Reduced development cycle

Faster deployment, enhanced mobility, and interoperability with coalition forces who also use Cisco based communications infrastructures

Did you know?

In 2007, Cisco conducted nearly 2 million virtual meetings using Cisco Unified Meeting Place and WebEx. This saved tens of thousands of long-haul and regional travel miles.

Capability Platforms

Maritime

Programme Description

The procurement of two new aircraft carriers for the Royal Navy – HMS Queen Elizabeth and HMS Prince of Wales – represents a step change in capability. When they enter service in 2014 and 2016, they will be the biggest and most powerful surface warships ever constructed, enabling the delivery of increased strategic effect and influence around the world.

“The Cisco communications infrastructure provides ships with state of the art technology which can be maintained at peak performance, through straight forward upgrade procedures, helping us meet the MOD’s Through Life Capability Management targets.”

Julian Squire, Systems Design Authority, ACA

Cisco Activity and Intent

Traditional maritime networking would have called for a high number of separate infrastructures for the distribution of weapons system, navigation, voice, video, television, and entertainment system traffic. However, using modern best practice architectures and products, the convergence of services allows for highly reliable communications across a greatly reduced number of security domained networks onboard the ships, which connect administrative, navigation and weapon systems. The communications infrastructures are powered end-to-end by Cisco who provide the Networking, Unified Communications, Security, and Network Management technologies for the programme.

MOD benefits:

- State of the art and future proof communications infrastructure
- Reduced number of physical networks can provide the MOD with better value for money
- Modularity and upgradeability enhance Through Life Capability Management

Partner benefits:

A Cisco end-to-end communications infrastructure can help reduce integration risks and enhance interoperability with other Defence programmes such as DII which are also based on Cisco technology.

Did you know?

Cisco TelePresence saved £40million in travel costs in 2007.

Air, Space and Cyberspace

Cisco works with Defence, Government, and civil space establishments to provide next-generation global services that enable the delivery of merged terrestrial and space-based services over IP-based COTS technology.

Cisco is adding new and enhanced capabilities, linking space with the commercial communications and small satellite markets and extending IP technology to infrastructure protection, disaster recovery, mobility, sensors, broadband, and other services.

SkyNet 5

SkyNet 5 is a backhaul satellite communication service which is delivered to the MOD under contract with Paradigm Secure Communications. The service will be delivered via three satellites and will serve as the main back-haul communications service for deployed military troops.

Cisco Activity and Intent

Being the most efficient way to provision bandwidth to mobile forces in theatre, Satellite based technologies play an essential role when connecting deployed systems together over longer distances and back to the UK.

Cisco has made a considerable investment in R&D to adapt its solutions specifically for use with satellite networks to help overcome significant latencies and packet loss which is inherent with the technology.

“It was not as if we were looking at images of us transferred via satellite to monitors; it was as if we were in the same room.”

Corporal Dennis Alexander, U.S. Marines

MOD benefits:

- Using IP technology over satellite enables the MOD to create a single coherent network that extends from UK into theatre
- A single network will enhance situational awareness as the process of getting the right information to the right people at the right time is more efficient and greatly simplified
- IP based Air and Space Capability Platforms can enhance flexibility by enabling each operational asset to become a relay node on the network

Cisco TelePresence has also been proven as an effective tool to boost morale when used in a welfare context. It was deployed by the DoD in Falujah in Iraq in April 2008 and allowed service personnel to meet their families over a satellite based service. The first soldier to take advantage of the service was Corporal Dennis Alexander from the U.S. Marines. His reaction was “It was not as if we were looking at images of us transferred via satellite to monitors; it was as if we were in the same room.”

Cisco TelePresence

Cisco TelePresence is an example of a technology that can be delivered effectively via satellite communications. The Cisco TelePresence service uses Ultra High Definition video technology to create a virtual meeting environment using life-size imaging and spatial audio that gives the users an experience that rivals a face-to-face meeting. This technology can effectively be used as a C2 System, allowing senior members of staff in the UK to talk to Operational Commanders in theatre, while giving them the ability to read body language and ensure that messages are understood.

Did you know?

Cisco and the United Nations Development Programme (UNDP) have launched the Cisco Networking Academy Programme in Africa, Arab States, Asia and the Caribbean, providing advice and technical assistance on information technology.

Ground Manoeuvre

Future Rapid Effect System

The Future Rapid Effect System (FRES) aims to deliver a fleet of more than 3,000 armoured vehicles for the British Army that is rapidly deployable, network-enabled, capable of operating across the spectrum of operations and protected against the most likely threats.

Cisco Activity and Intent

Cisco's aim is to ensure the vehicles are IP enabled in the battlespace to create a ubiquitous mobile network. It can provide the vehicles with all the benefits and increased capability of a networked battlespace, so that soldiers in the field can receive highly secure video or view maps using IP phone screens, allowing commanders to support in real time.

It also gives access to other IP based applications such as Joint Operational Command System (JOCS) and situational and tactical awareness delivered from Intelligence, Surveillance, Target Acquisition and Reconnaissance (ISTAR) programmes.

Future Integrated Soldier Technology

The Future Integrated Soldier Technology (FIST) aims to enhance the infantry's combat effectiveness as part of the Future Soldier project. The goal is to integrate a modular system of all equipment, weapons and their sighting systems, as well as radios which the individual soldier carries or uses.

Cisco Activity and Intent

Cisco's aim is to ensure individual soldiers are network enabled as 'nodes' within the Battlespace, to create a ubiquitous mobile network. FIST's integration with FRES is key to Cisco's involvement since only a ubiquitous IP network with an end-to-end solution can deliver that capability.

“A common capability, common electronics, common displays... that same concept is what we're trying to do with the Future Combat System.”

The US Army's Lt. Gen. Jeffrey A. Sorenson, the Army's Chief Information Officer

MOD benefits:

- Users can access the same services independent of location
- Cisco technologies with many integrated features and services can deliver significant benefits to SWAP (Size, Weight and Power) challenges when deployed on mobile vehicle platforms
- A self-forming, self-healing mobile ad-hoc network resolves challenges in terrain and situations where a traditional network is not possible or would require significant time to install

Overseas Example: FCS

Future Combat Systems (FCS) is the United States Army's principal modernisation programme. It is intended to be a joint networked system across Mounted and Dismounted Combat. It includes the Future Force Warrior – a US military initiative. This project seeks to create a lightweight, fully integrated infantryman combat system.

This programme delivers a compelling advantage to highly mobile users, unsupported by a fixed infrastructure who need to share information.

Did you know?

More than 70% of Fortune 500 companies are using Cisco Unified Communications.

Capability Platforms

Logistics

JAMES 2

The JAMES 2 project is the second within the JAMES (Land) programme and aims to deliver an improved through-life asset management of all defence Land Equipments. It is a Business Change programme focused on Whole Fleet Management (WFM).

Cisco Activity and Intent

Cisco is working with Lockheed Martin and EMC to deliver the data centre and application networking to support this logistics application.

MOD benefits:

- ▾ Centrally manage the fleet of equipment
- ▾ Store and issue equipment efficiently
- ▾ Increased equipment availability to achieve Force Elements at Readiness with reduced fleets

Did you know?

Cisco has made over 100 acquisitions to add talent and enter new markets.

“FLIS DP will enable accelerated and more agile acquisition and deliver an integrated and coherent E2E Logistic Information Capability”

Ian Wakeling, Logistics Applications IPT Leader

Future Logistics Information Services Delivery Programme

The Future Logistics Information Services Delivery Programme (FLIS DP) is a major activity that aims to transform defence logistics to deliver operational and financial benefits. FLIS DP will simplify the management and delivery of Logistic Information Services by appointing a single Prime Systems Integrator (PSI) with responsibility for Defence Logistic Transformation.

Cisco Activity and Intent

Cisco can draw on its experience to deliver the data centre and application networking to this project. Enterprise solutions with major UK retailers allow Cisco to bring through commercial best practice and de-risked solutions.

Cisco's Intelligent Retail Network framework shows how we have taken these enterprise challenges and created a network in which people are fully connected to each other and to the information they need. Suppliers – be they civilian or military – can better sense and respond to individual's needs.

MOD benefits:

- ▾ Reduction of current portfolio of 140 applications to a manageable level
- ▾ Integrated end-to-end view of logistics across the whole estate
- ▾ Effective utilisation of bandwidth across the infrastructure

Overseas Example: Smart Depots, US DoD

Smart Depots, an umbrella initiative aimed at modernising depot operations, delivers mobility, legacy interoperability, distributed intelligence, and collaborative communications. From inventory management, asset and workforce visibility, to force protection, Smart Depots connect people, systems, and assets in unique and repeatable ways to improve the flow of work orders, tasks, and missions.

MOD benefits:

- ▾ Depot Communications – provide true unified communications where voice, video, and new or traditional voice systems seamlessly integrate into a communications environment for logistics operations
- ▾ Physical Security – enhanced protection of infrastructure property and assets via connected video, sensors, and location awareness
- ▾ Depot Inventory & Asset Management – focus on workforce productivity, asset tracking and improved decision spaces for logistics personnel and commanders

MOD benefits:

- ▶ Occupants and users benefit from efficient, modern housing, with the latest communication and equipment options
- ▶ Optimise available space to free up real estate and rationalise living quarters or training facilities

▶ **“The use of IP networking and telephony equipment represents a significant investment for Brunel, but it represents great value for money and we expect that the system will pay for itself in five years.”**

Simon Furber, Network Manager, Brunel University

▶ **Capability Platforms**

Infrastructure

Training

CCRE (Cisco Intelligent Buildings and Connected Real Estate)

Cost effective infrastructure: Opportunities and Challenges

Government directives are focused on driving operational efficiency through asset utilisation and property performance.

The Cisco Connected Real Estate solution is a framework that could ultimately facilitate the transformation of the MOD's estate. Cisco Connected Real Estate helps address the challenges of decreasing both operational costs and physical real estate, whilst introducing organisational flexibility. When developers incorporate CCRE into their building, all building and IT systems are converged into a single IP infrastructure. Not only can operational and maintenance costs drop, but there is the opportunity to deliver innovative services and collaborative working.

MOD benefits:

- ▶ Pre-positioning of content to ensure version control and commonality of Training Material
- ▶ Wireless capability to enable flexible training platforms
- ▶ Training on demand, anytime, anywhere

DTR

The MOD intends to make a considerable investment at all the major sites that form the National Centres of Excellence, including a largely new facility which will be built at St Athan that will ensure the best possible living and learning environment for our service personnel. In addition, new technology and methods of teaching will be used to enable Defence trainees to learn at their own pace.

Cisco Activity and Intent

Cisco can offer a range of market leading solutions in the Education Sector where we work with Universities, Academies and Schools to provide the very latest technology support to assist training, administration and communications, including site- to-site links and remote links for deployed or home based training. Added to which, our Real Estate offerings can allow for considerable savings to be achieved through leveraging IP networks in the centres to provide much more than the communication links. We have several case studies that demonstrate the proven cost reductions of taking a holistic approach to Security and Facilities Management through the network platform.

Did you know?

Cisco has its own career opportunities page, which 20,000 candidates visit each month.

Homeland Security

Whether the term used is Homeland Security, Business Continuity, Disaster Recovery, or Public Safety and supporting themes like Resilience and Critical National Infrastructure, the heart of all of these concepts is the ability to have the right information, at the right place at the right time. Just as importantly, it needs to be presented in the right way to facilitate clear decision making.

A network-centric approach to homeland security and public safety communications can help enable Government agencies and disaster response organisations to respond more effectively and efficiently to unpredictable challenges.

First responders and homeland security agencies can perform highly secure, real-time collaboration and surveillance while sharing information across local, regional, and national agencies. An intelligent network helps enable the rapid collection, analysis, and distribution of voice, video, and data traffic.

These network-centric communications and technology solutions support established home-land security priorities in their jurisdictions, addressing issues in the areas of public safety and first response, public health, transportation, and critical infrastructure protection.

“The network has become an essential force-multiplier. It connects organisations and people, and it enhances mission effectiveness. Cisco’s vision is to provide global accessibility with the potential to reach anyone, anywhere, using any communications device.”

Brad Boston, Senior Vice President,
Global Government Solutions, Cisco Systems

Global events have increased the profile of Homeland Security through terrorist incidents, but natural disasters can have an equal or greater impact. The challenge of a flood is very different to the prevention of a terrorist incident, but the solutions of command, control, communication and co-ordination are similar. Homeland Security pulls together diverse disciplines that do not necessarily collaborate in today’s Corporate and Government structures.

Cisco Activity and Intent

Innovation is not just about technology, but about doing things in a different way. One example would be event-based management decision processes and tools. Cisco’s success with Unified Communications and using the Network as the Platform makes us key advisors and providers in this space. We have a track record in applying technology to deliver business transformation across all industries and sectors that can be leveraged to support partners, organisations, governments and individuals in meeting today’s challenges and the futures threats in Homeland Security.

MOD benefits:

- Common collaboration tools across Government
- Durable and resilient communications option that can allow video, data and sensor exchange, including mobility
- Tested convergence solutions that integrate fixed and mobile radios and voice over IP platforms

Did you know?

Cisco’s 21st Century Schools Initiative is blending technology and education to rebuild Gulf Coast schools devastated by Hurricane Katrina.

Capability Platforms

Medical

JMC

The Joint Medical Command (JMC) incorporates the Defence Medical Education and Training Agency (DMETA) and will take on additional responsibilities, notably for Healthcare and the Defence Dental Services, in due course. The JMC will play a key role in the transformation of the Defence Medical Services and presents a unique opportunity to make a real and sustained improvement to the delivery of operational medical capability and the provision of secondary healthcare to Service personnel.

Cisco Activity and Intent

Cisco can bring its delivery experience with in the UK NHS to Defence, for example the N3 network. Other defence focused medical solutions include Cisco TelePresence for remote consultations and Data Centre integration for large amounts of medical data.



Did you know?

Cisco ranks as one of the 'World's Most Ethical Companies' 2008.

“We have an extensive network based on the N3 deployment – we wanted to exploit the technology to allow us to connect sites up... we developed an integrated voice and data service from Cisco... they perform brilliantly”

Trever Wright, Associate Director of Informatics,
North East Lincolnshire Primary Care Trust

Three key frameworks Cisco already has in place are:

1. The Cisco Medical-Grade Network

A complete end-to-end business solution for every healthcare environment extending from the data centre to patient, operational and offsite facilities, speciality clinics and research labs. It is a highly secure, resilient infrastructure that integrates all technologies across the healthcare environment – enables caregivers and patients to connect and communicate as they give or receive treatment in hospitals, offices, in barracks or on operations.

2. Cisco Clinical Connection Suite

An advanced set of clinical solutions that directs, locates, and prioritises information for clinicians and patients. Running seamlessly on a Cisco Medical-Grade Network (MGN), it provides clinicians with the patient data they need, immediately, wherever they are.

3. Cisco Connected Imaging

Ensures anytime, anywhere prompt and highly secure access to digital images. This helps enable medical personnel to interpret, diagnose and collaborate in real-time, facilitating rapid treatments of patients. Using advanced infrastructure and security technologies across the MGN and integrating voice applications, Connected Imaging improves productivity and results from radiologists, referring physicians and specialists.

MOD benefits:

Military personnel welfare by using Cisco TelePresence to link families with troops stationed abroad

Using TeleMed via Cisco TelePresence could allow a centralised Medical Officer to consult remotely from the UK to Theatre, saving time and allowing a greater number of consultations

Hugh Eaton
UK Defence & Intelligence Director

Whether it be SACEUR in NATO, or the Defence Board in the MOD, defence leaders in many countries are now driving operational advantage through the adoption of the latest technology.

Commander Land Forces was quoted recently as saying: "Don't give me just situational awareness, I need situational understanding". By looking across global early adopters, Cisco is bringing the latest technology to the table at a price Defence can afford, and at a pace they need to deliver exactly that.

Pace is critical, as the new asymmetry is not like the comfortable force ratios of yester year and the paradigm in which coalition forces could confidently expect to overmatch most opposition. In the new asymmetry, the new enemy – built for speed and security and at ease with chaos – has access to the latest technology and knows how to use it.

Cisco's mission therefore, is to ensure our forces are equally well enabled, and more. Working with defence leadership, we are helping to reduce cost, increase programme pace and technology adoption, and provide the information superiority our personnel demand and deserve.



Going forward



↘
// Informed.
// Prepared.
// Ready.
//

Find out more

We would be delighted to conduct a workshop with you to share our expertise and explain how Cisco technologies will enhance your operations.

Alternatively, we invite you to a session in one of our Executive Briefing Centres, either at our UK head-quarters in Bedfont Lakes or at our US offices in San José or Washington.

We will perform a live demonstration of our latest technologies, tailored to your capability requirements.

We also run a full programme of events throughout the year covering a range of Defence themes.

To find out more or for any other questions, please contact the Senior Business Manager on the Defence Team:

David Lawford Mee
dmee@cisco.com
+44 (0)20 8824 9265