



Remote Working: new opportunities through emerging technologies

Paul Barker - mBusiness Director

Jeremy Fry - Technical Consultant

CMG UK

- established in 1964 with 38 years of sustained profitable growth
- listed on the London (techMARK 100) & Amsterdam (AEX Midcap) stock exchanges
- global top 40 ICT Services and Wireless Data Solutions company
- over 14,000 employees with centres in every continent

Agenda & Scope

- Introduction
 - mBusiness
 - Market
 - Drivers
 - mWorkforce
 - Drivers
 - Scope
 - Benefits
 - Case Study – Radiocommunications Agency
 - How to get started
 - Questions
- Definitions:
 - Mobile Worker
 - Spends more than 20% of time spent away from office or home
 - Telecommuter
 - Works from home for more than 1 day per week
 - This presentation is focused on the mobile worker (mWorkforce)

mWorkforce – A new requirement?

“Tomorrow’s businessman will have the information necessary to do his job, right at his fingertips, due to the growing acceptance of microfilm as the solution to the information explosion.”

Silicon Snake Oil, Clifford Stoll, 1974

The demand for mBusiness solutions



“Corporations are no longer satisfied with solutions that are only available on fixed-wire devices. They're looking to extend functionality on an increasing number of applications to an increasing assortment of mobile devices" (IDC)



mBusiness definition



Business or consumer services, optimised for internet enabled mobile devices, which inform, entertain or transact over public or private mobile networks



mBusiness services



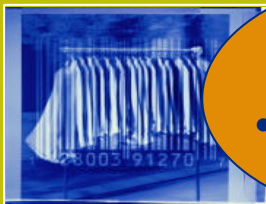
Finance

- Banking
- Customer Service
- Stock Trading

- Static & dynamic
- Location based
- Community of Interests



Information



Retail

- Promotion
- Sales & service
- On line auctions
- Purchase

- PIM
- Intranet/Extranet
- Dispatching/Workflow
- Logistics



Enterprise



Travel

- Ticketing
- Customer Service
- Routing in airport
- Enquiry

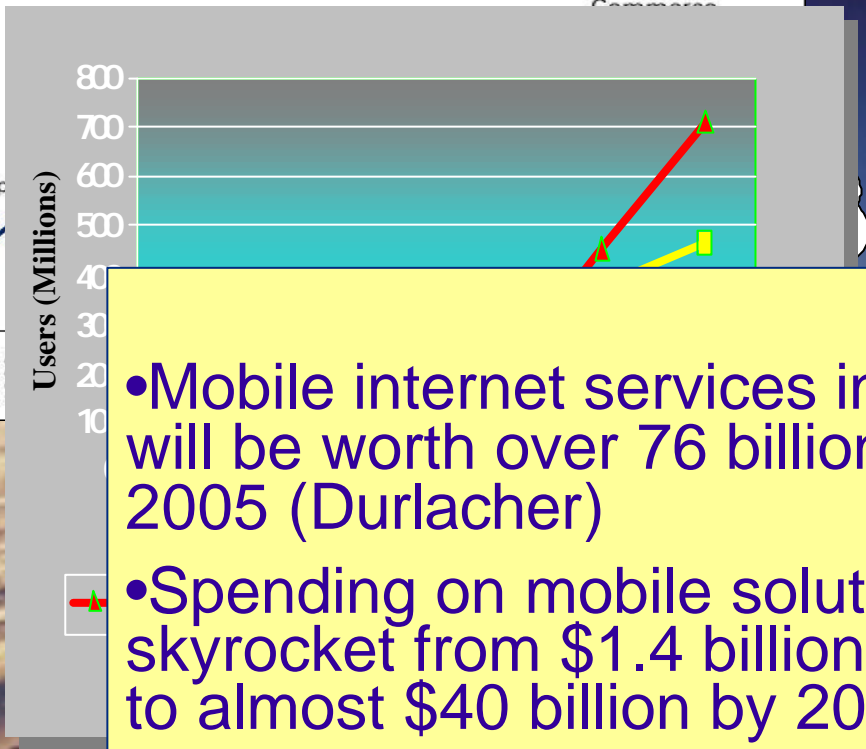
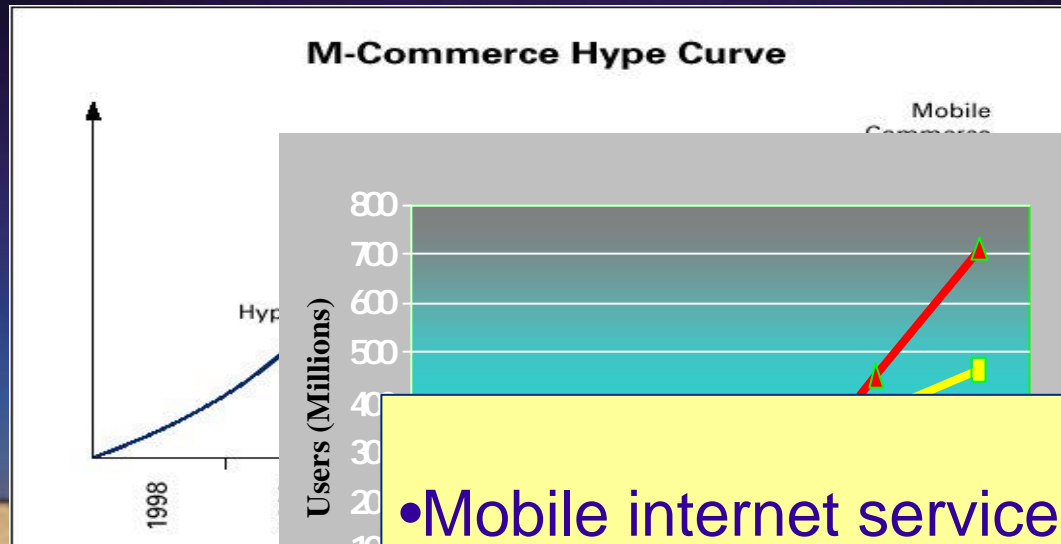
- Gaming
- Interactive tv
- Chat Group
- Video & audio



Entertainment



The mBusiness market



- Mobile internet services in Europe will be worth over 76 billion euro by 2005 (Durlacher)
- Spending on mobile solutions will skyrocket from \$1.4 billion in 2000 to almost \$40 billion by 2005 (IDC)

mWorkforce drivers – Behavioural & Commercial



- Behavioural
 - Mobility, immediacy & ubiquity
 - More mobile phones than PCs
 - The youth market
- Commercial
 - Rapid growth in mobile market
 - Complementary channel
 - Timely information - anytime, anywhere services

mWorkforce drivers - Technical



- Rapid development of phone and PDA technology
- Device convergence (logical vs. physical)
- **GPRS**
- Location-dependent services
- Voice XML Integral eCommerce
- **Bluetooth**
- Wireless LAN
- **SMS**

Wireless enabled Workforce efficiency



Enabling a business or public service to benefit from its people having the right information in the format they want, delivered in the way they want, when they want it and report back.



The demand for mWorkforce solutions



IDC expects the number of mobile workers to grow from 6.2 million in 2000 to more than 20.1 million in 2005 (Europe)



Wireless enabled Workforce efficiency



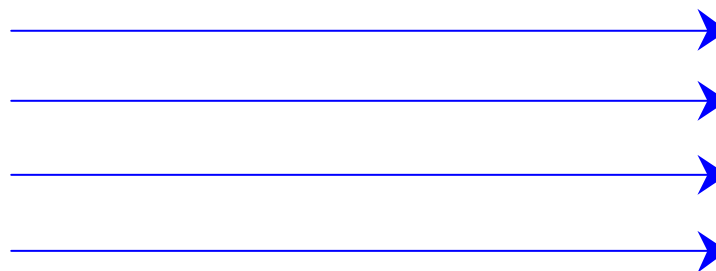
Knowledge worker

mobile by choice
wants mobile tools
(more) effective
manage own time



Task worker

inherently mobile
needs mobile tools
essential
work to someone else's
plan



Social & business triggers for mWorkforce

- Economy
 - Increasing demands on employees, requiring greater flexibility and efficiency
- Evolving work patterns
 - Increased mobility
 - Need for greater efficiency when mobile
- Access to corporate knowledge base from any location
- Employee autonomy – control over working lives
 - Improve staff retention and reduce associated costs
 - Support for more flexible work/personal life balance
- Transport systems
 - Need to make better use of 'dead time'
- Broaden catchment area for rare skills
- Consumer take-up of mobile services

Issues

- Corporate support for mobile devices
 - Explosion of devices – are you in control?
- Security
 - Estimated 40 PDAs and 1000 phones left in taxis per month
 - Lost operational data
 - Architecture – benefits of ‘always on’
- Right location for the job
 - Face to face vs Remote
 - Do you want to travel 1hr + to an office to access bandwidth or write a report?

BBC lays down PDA law **IT Week**

Enterprises that do not correctly identify the needs of mobile workers will decrease their productivity by at least 20 per cent, according to **Gartner Group**

Without the necessary technology 39 per cent said they struggle to keep track of messages when out of the office. Only 35 per cent of managers were offered smartphones or WAP phones and only 22 per cent were offered personal digital assistants (PDAs) by their companies.

ICL Management Survey

Wireless enabled Workforce efficiency

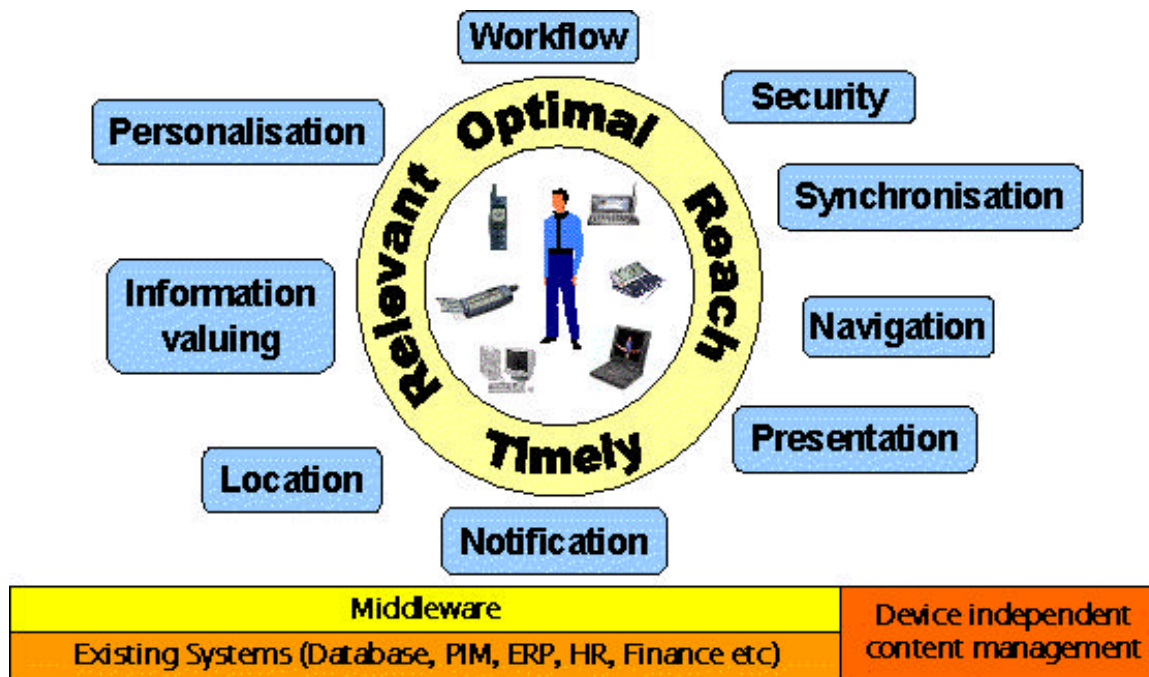
Benefits:

- increased productivity - making better use of time
- reduced operational costs - the right tools for the job
- increased market share - more responsive to customer needs.

Achieved through:

- the ability to synchronise information between different devices and technologies while on the move or disconnected
- the ability to enhance an organisation's processes and interfaces by making them available anywhere at any time.

mWorkforce Services



- ✓ **reach** - making services available through new channels and devices
- ✓ **relevance** - helping people access the right information easily and quickly
- ✓ **timeliness** - with near instant dissemination of time-sensitive information
- ✓ **optimisation** - enabling real and substantial increases in efficiency.

CMG



Mobile Working Case Study

Jeremy Fry

Consultant, Radio Spectrum International

The Radiocommunications Agency



- UK Government Agency
- Management of civil radio spectrum
 - Licensing
 - Enforcement
 - Quality
 - Research

Member of Government Secure Intranet

- All IT infrastructure must adhere to CESG security restrictions

CMG

Radio Spectrum International



- Joint Venture Company
 - Radiocommunications Agency
 - CMG
- Development of applications
- Management of IT infrastructure
- Selling spectrum management solutions

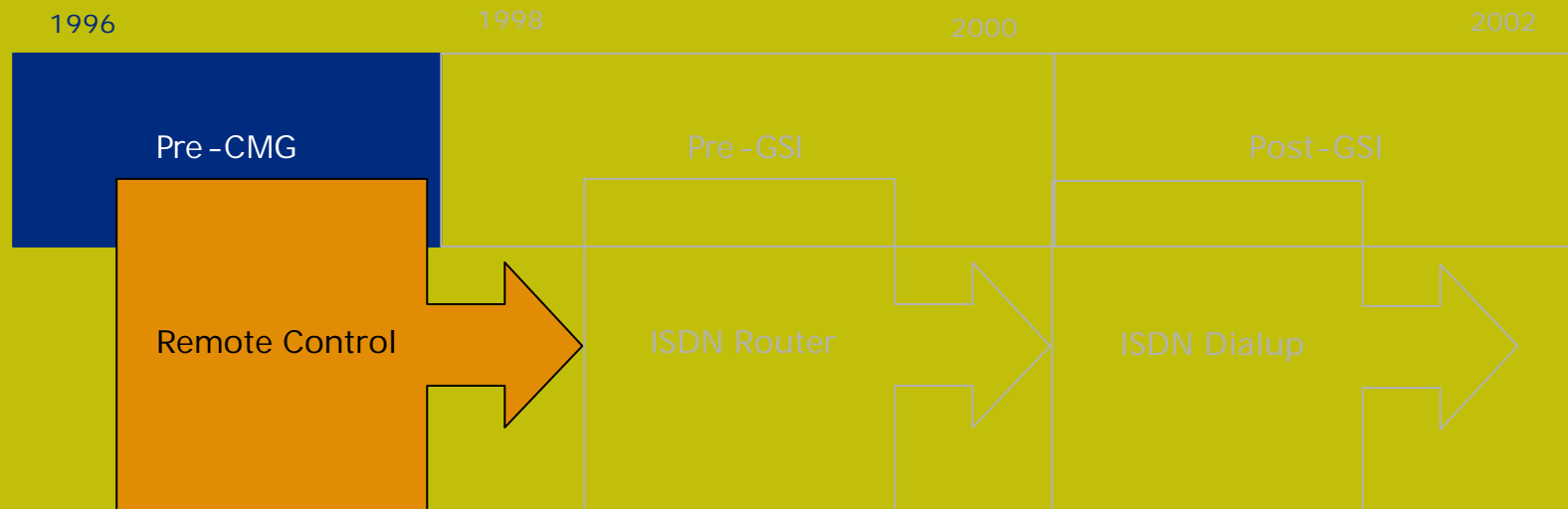
Telecommuting since 1996

- Regional Officers
 - Local investigation officers
 - Small or Home Offices
 - Network Applications
 - Email
 - Licensing
 - Intranet
 - Shared documentation
 - Time recording



Remote Access 1996-1998

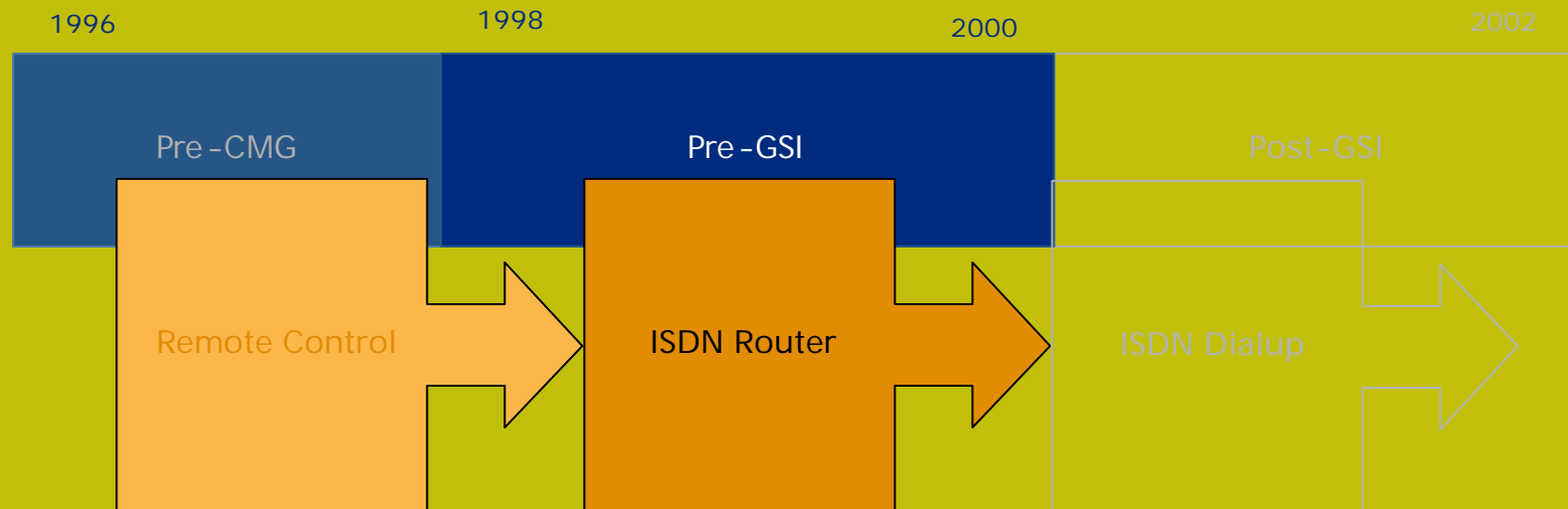
- Remote Control by Modem
 - Good use of bandwidth (thin client)
 - Insecure
 - Difficult to Manage



Remote Access 1998-2000

- ISDN Router

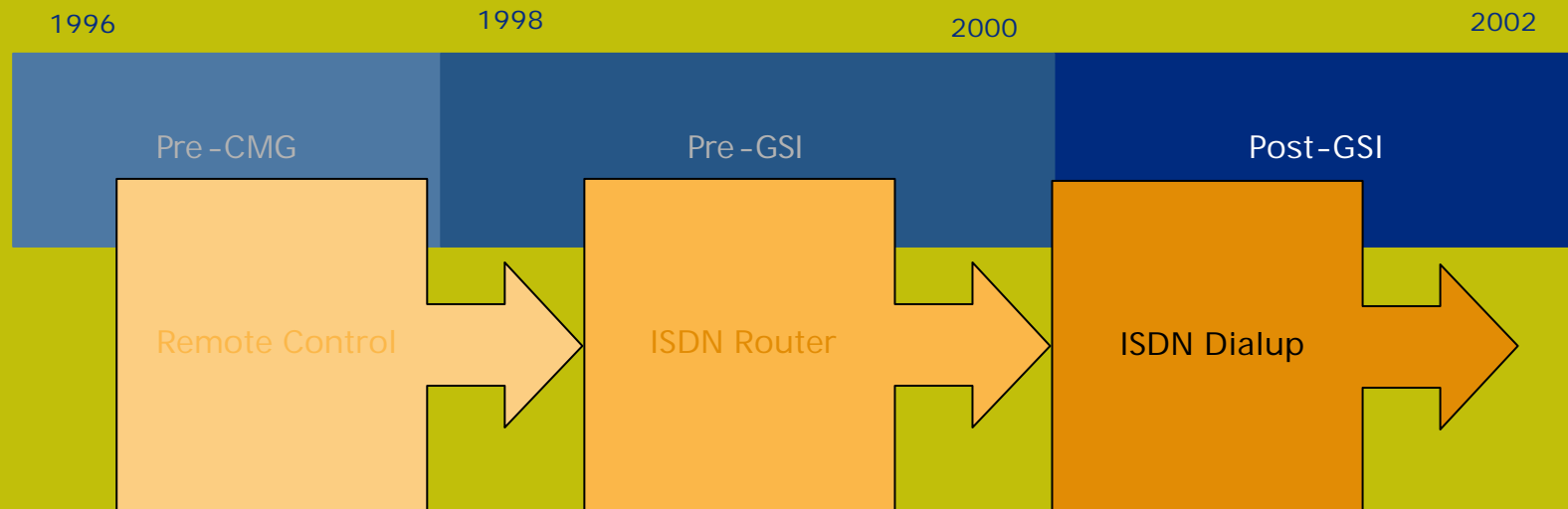
- Extend WAN into user's home
- Maximum speed of 128Kbps
- No authentication on ISDN
- No CESG approval (strong authentication required)



Remote Access 2000-2002

- ISDN Dialup

- Strong Authentication (token, one-time password)
- 64Kbps only
- CESG approved (strong authentication required)
- Poor performance

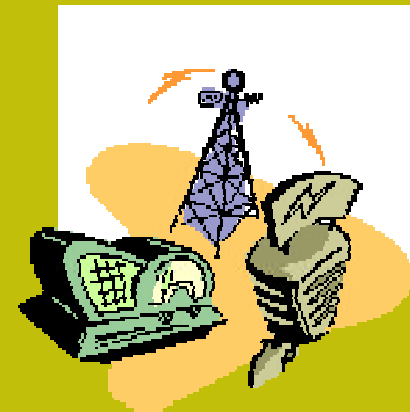


Making Spectrum
Profitable



A New Requirement: The Mobile Workforce

- Spectrum Quality Management
 - Truly roaming users
 - Interference investigations
 - Pirate radio stations
 - License enforcement
 - Clean spectrum is profitable spectrum
- Applications
 - Licensing data
 - Email
 - Shared documentation (Intranet)
 - Time recording and work schedules



Mission Impossible?

- Mobile
- Fast
- Secure
- Reliable
- Cost Effective
- Future Proof
- Approved



Mobile

- GSM
 - Too Slow (14.4Kbps)
- HSCSD
 - Reasonable speed (28.8Kbps)
 - Good middle ground
- GPRS
 - Fast (to 64Kbps)
 - Not mature
 - Connection via third party network
 - Not CESG approved
 - Possible future



Flexible

- Connection Methods

- ISDN
- Modem
- GSM / HSCSD
- Internet (ADSL, GPRS, Cable Modem, 3G)

- Devices

- Desktop
- Laptop
- PDA



Fast

- Increased speed through:
 - Compression
 - Thin client
 - Low bandwidth applications
 - Access to services, not entire network
 - Digital technology (ISDN)



Secure

- Strong Authentication
 - Tokens
 - One-time Password
 - RADIUS
 - Meta-Directory (NDS)
- Encrypted
 - VPN
 - Blowfish
 - AES-128 (CESG Approved)



Reliable

- Session Management

- Maintains VPN session even if connection broken
- Can re-establish session on different transport medium
- Self-healing connections

- High Availability

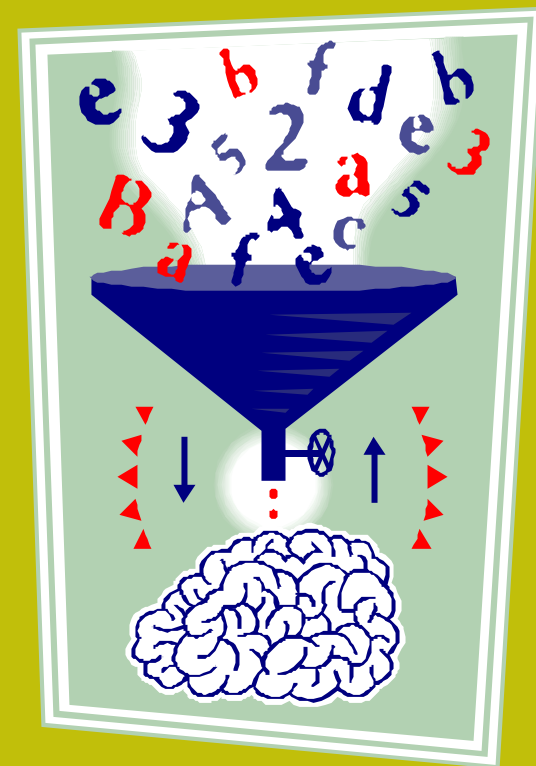
- Duplicated systems on two sites
- Load balanced
- Expensive
- Risk analysis
 - can lightning strike twice?



Radiocommunications
Agency Building, 1996

Cost Effective

- Session Management
 - Drop line during idle time
 - Re-establish when needed
 - No loss of data
- Compression
 - Reduce amount of data transmitted
 - Reduce time taken to transmit



Future Proof

- Scalable
 - Each site can support up to 180 concurrent dial-up users (PSTN, ISDN, GSM)
- Futures
 - VPN tunnels through public Internet
 - Overseas access
 - CESG Approval pending...



It Isn't Over Until...

- Secured laptops
 - Anti-virus
 - Centrally Managed Personal Firewall
 - Intrusion Detection
 - Hardware access devices
 - Disk encryption
- CESG Approval



A more **valuable**
workforce



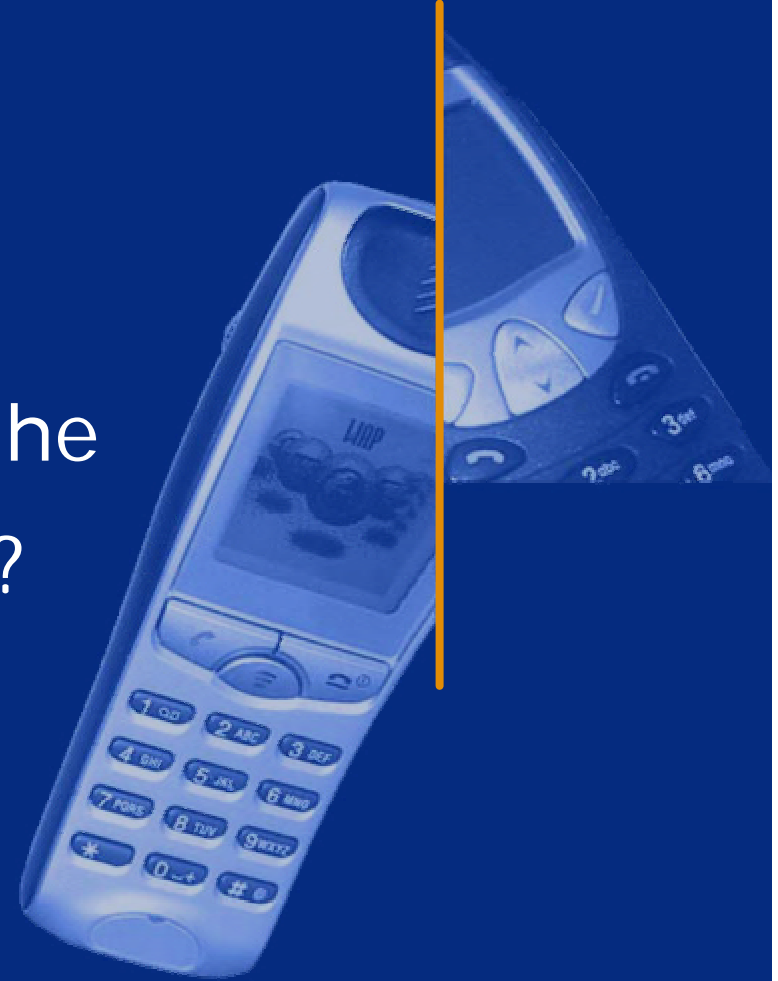
Valuable Workforce

- Less time in the office – more time at work
- People in the right place at the right time
- Optimal management and automation of workflow

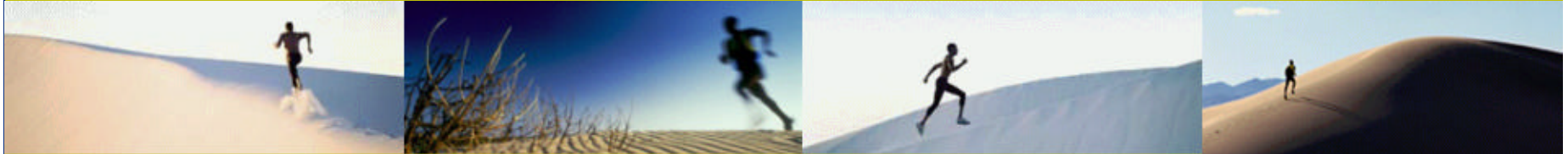
To the Radiocommunications Agency
their mobile workers spend more time in
the field managing the radio spectrum,
investigating interference, and enforcing
licenses.

That's their business.

how can I capitalise on the
mWorkforce opportunity?



Next steps



- The growth in demand for mobile worker services is inevitable – need to start somewhere
- Start small – i.e workshop to identify quick wins and scope a pilot providing
 - Rapid, low cost entry point
 - Experience of the mobile world
 - Clearer understanding of requirements and opportunities
 - Quick ROI
- CMG Managed Services – from pilot through to implementation

CMG

Thank you



Any questions?

paul.barker@cmg.com
jeremy.fry@cmg.com



www.cmg.com

© 2002