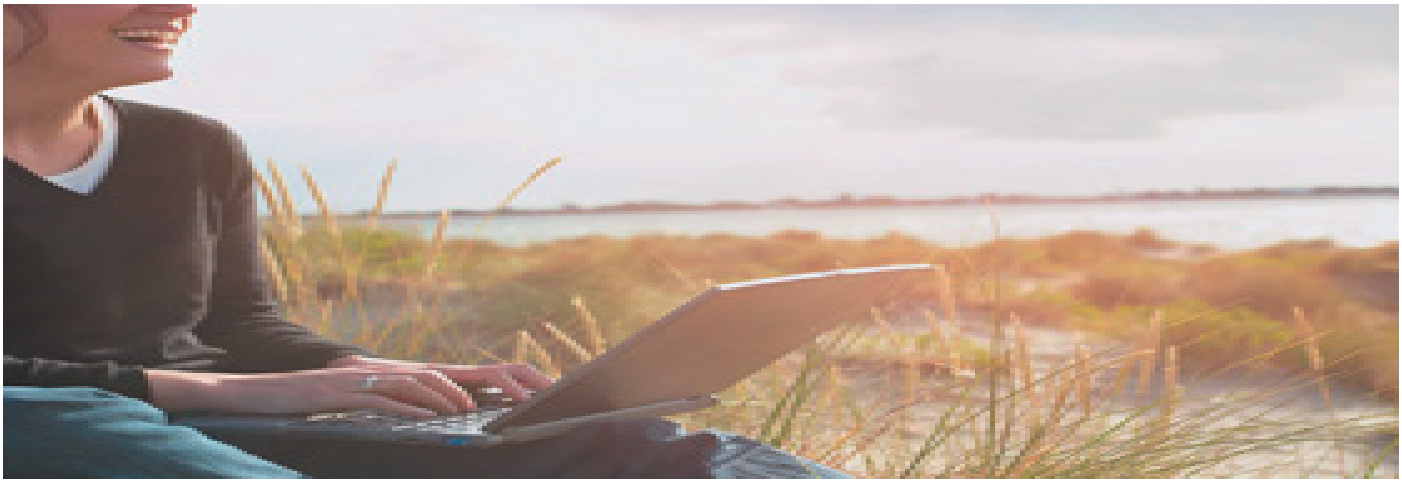
White Paper

Making Mobile Data a Reality



Wireless Access

Deploying Mobile Data Solutions

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Introduction

Convergence between traditional communications and the internet is happening at an alarming rate. The ability to communicate anywhere, and work anywhere, is the new driving force in business. In today's busy society our dependency on information has never been greater. Enterprises both large and small are looking to deploy mobility solutions that give their employees uninterrupted access to the corporate LAN including e-mail, internet and any business applications, and the pace of change means that organisations and businesses are constantly re-inventing themselves and the way they operate.

When considering the data communication tool to make that happen, the same issues still rise to the top: cost, reliability, ease of use, low risk, future proofing, scalability, speed, security and compatibility with existing investments. The challenge to Brand has been to deliver mobile and remote working solutions which keep pace with tomorrow whilst addressing the very real needs and concerns of the customer today.

Brand has researched the requirements of the real user of data communications, and of the organisations that have the task of delivering data solutions, and many of the research findings are encompassed within this paper.

The Changing World

- And The Challenges

As more and more organisations look at the benefits of adopting a mobile data policy, they are faced with many challenges along the way. In detailed research carried out by Brand Communications, the concerns towards the implementation of mobile data began with the following points being the particular barriers:

- Security Concerns
  - data integrity and intrusion prevention are paramount
- Cost Benefits
  - return on investment
- Seamless Roaming
  - the ability to switch bearers to obtain always on connectivity
- Integration
  - making wireless applications work with current and legacy systems

Companies have a underlying need for mobile data. The drive for mobile data is coming from many different sectors across the worldwide marketplace. By incorporating mobile data into their corporate systems, companies are achieving:

- Improved Operational Effectiveness
- Providing higher levels of customer service
- Enhancing workforce's productivity and motivation
- Providing Communications with mobile staff
- Capturing information in real time

Organisation

The organisation needs to deploy mobile data solutions which protect their investment, genuinely extends the knowledge base to the isolated worker, and delivers tangible paybacks within months. Very often they need solutions which are independent of the network, the infrastructure and the hype, yet are built on standards. Corporates don't want leading edge, they just want proven solutions that give them the edge.

The Mobile User

The user needs products that are simple, even foolproof, yet which offer unparalleled features and which deliver content and data quickly, cost effectively and most importantly reliably - time after time. The user can then enjoy the benefits that mobile working can bring, without feeling disadvantaged or frustrated.

The Network Operator / Managed Service Provider

The network operator / managed service provider needs to give a clear message to the market that it has a proven strategy for mobile data, and the substance beyond to deliver real solutions. The operator / provider needs to utilise current technology investments and to encourage real uptake today, whilst offering complete seamless roaming between different bearer services. The challenge is to do that for consumer and corporate alike, whilst making money at the same time. The only way is by deploying the world's best value-added IP platforms and by winning customers with unique services.

All of these concerns have been addressed by Brand. Brand has harnessed standards and the convergence taking place to really make wireless LAN access to e-mail, internet and applications really work. Brand understands the requirements of each of the communities, how they need to interact, the issues that face them, the products that help them and the intrinsic value that can be built up by delivering those products and services. Brand offers:

- Seamless Connectivity to LAN applications
- Seamless Roaming between Wireless LANs, GSM, GPRS and 3G Networks
- Secure Access
- Session Management
- Real Time Mobile to LAN connectivity for Mission Critical Applications
- High Speed, Scaleable Performance for reliable mobile data communications

Brand's product range addresses all of them in a unique way, which positions Brand as one of the world's leading suppliers of Mobile IP LAN access solutions.

Meeting the Challenges

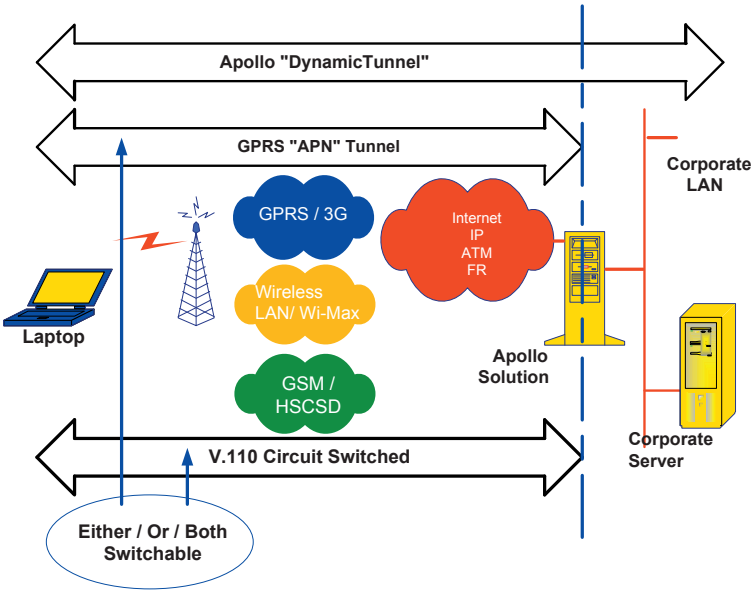
- Brand Apollo

Brand's Apollo solution is making mobile data a reality for business critical data applications. Apollo provides a remote user (i.e. a user who for some reason cannot be physically connected to a LAN environment) with full access to LAN and/or Internet Services, via whatever communications medium is available. By definition remote users can be mobile (e.g. train or car), in a hotel room, in a customer's premises, in a truly remote location, or working from home. In these examples, the typical communications options are ISDN, PSTN, GSM, GPRS, HSCSD, Satellite, WLAN (802.11b), WIMAX (802.16), HSDPA, DVB or 3G. Apollo allows the remote user to connect into the LAN environment via the chosen communications system in a simple, secure, resilient, high speed and cost effective manner.

The Apollo solution has been designed to move with the advances in technology. It is an innovative mobile data client / server solution that compliments the user's choice of hardware platform and software applications. Unlike some solutions that expect the user to make dramatic changes, Apollo seamlessly extends the LAN environment at both ends via its transparent hardware and software elements. Apollo consists of software for the mobile user and a hardware / software access solution within the network or LAN environment.

Mobile Devices are becoming more sophisticated and widespread. This presents many new possibilities for innovative organisations to capitalise on the benefits that mobile working has to offer. The Apollo solution supports many different CE and Pocket PC devices as well as laptops and Smartphone throughout their lifecycle and helps significantly improve their functionality.

Any application that can operate over an office based LAN or internet connection, (typically e-mail, web browsing, database access etc) can continue to operate on the remote access device without modification. The performance of the remote application will be function of the bandwidth of the bearer service. However, Apollo incorporates a number of unique features that make the solution so usable.



Seamless Roaming

Moving between different wireless access environments can be a challenge to any mobile user. Connections between the client and server can fail. The Brand solution removes all the uncertainty of using wireless networks and can provide seamless roaming across all bearers or aggregate them as required to achieve a high speed service, ensuring continuity of connection without any user intervention.

For example, a mobile user who is on a Wireless LAN and walks out of coverage could automatically have their session re-directed over a GPRS connection whilst maintaining the integrity of the session. A Wireless LAN user on a corporate LAN may roam out of his coverage footprint and drop onto a public WLAN connection, the system would manage the changing subnets and continue the session over the changed infrastructure and routing so long as the session management server was visable through the new bearer.

Compression

The compression algorithm used in Apollo intelligently compresses data according to its type and takes place at the packet level. The technique has an excellent compression ability over a broad range of data types and as such benefits nearly all applications. It is a compression algorithm which means that it is very fast, offering superb performance. The Apollo Solution also will bundle multiple small packets thereby increasing the size of the data payload and the potential for higher compression through greater pattern sizes.

Many VPN solutions insert themselves into the data stream ahead of the compression algorithm which renders the compression useless because of the lack of any pattern as the data is tokenised by that point. However, Apollo compresses the data first before applying the VPN, which significantly improves throughput.

Security

Security has been a major concern in deploying secure wireless solutions to date. There are a number of reasons for this:

* Controlling Access to Corporate Data
* Lack of security whilst transmitting data
* Vulnerability of Lost / Stolen Devices
* Malicious Attacks from external sources

Apollo uses VPN dynamic tunnelling to add strengthened security to the network and data and Apollo ensures that no data is compromised or interfered with the use of encryption algorithms such as Blowfish and AES.

Security is greatly enhanced by Apollo because the client is allocated an address from the corporate host LAN and, secondly because the enterprise does not have to open a port in their firewall to permit access to their Radius Server for authentication. The Apollo Server acts as an absolute boundary between the enterprise and the public bearer and hosts a Radius Client to perform this task.

There is also a built-in firewall within Apollo for added protection from unwanted visitors or data traffic

See Mobile Data Security Whitepaper for more detailed information.

Session Management

Using GSM and call time based billing systems, Apollo's unique Session Management technology ensures that only real user data is transmitted, and that all other network traffic is suppressed. A virtual session is maintained between the mobile and the host, and the call dropped during periods of inactivity. This makes maximum use of the available bandwidth, reduces backbone traffic, makes maximum use of the host port capacity and give a significant reduction in call charges if using GSM. From the remote user's point of view it means not having to log on every time and a much faster response time, increasing user satisfaction of the system.

The Apollo solution can also handle many times more sessions than physical calls in progress, which means literally thousands of remote users can be logged on at any given time.

Another major benefit of session management is for ease of use.
Session Management allows users to log in once, and will intelligently maintain all configuration perimeters, encryption and compression settings ensuring that no reconfiguration is needed at any time during the remote activity.

The Brand solution also has full power management support allowing the client computer to suspend between periods of long term use whilst still protecting the end to end session and its security.

Call Recovery

It is widely accepted that dial-up calls drop from time to time, for various reasons, when carried over radio bearers and in particular if GPRS coverage is poor or when the user enters an area of no coverage (e.g. a train tunnel) mid way through a call. Apollo's unique call recovery techniques ensure the call is reconnected as soon as it can be, transparently to the user. Most software packages force the user to re-connect manually and log on, which wastes time and causes frustration.

Apollo's push technology means that the host can intelligently re-establish the call if it has something to deliver to the mobile device. A unique algorithm ensures no collisions between both ends as they attempt to re-connect the link.

Location Information / GPS

The Apollo solution also includes a GPS transport layer for user / device tracking. This is extremely valuable in emergency services, transport, logistics and for service sectors for optimising customer service or complying with new health and safety at work regulations in respect of lone working. The software can offer location, speed and direction information.

Messaging

Messaging is a new and unique addition to Apollo's functionality. The corporate now has the ability to send messages to the client device. It is an ideal compliment to mobile data as a company could send news updates and progress reports to the remote user in the field seamlessly.

The system could also by used by PTT's or hotspot operators to send advertising bulletins / network messages to their subscribed user base, which is a superb sales/marketing tool and revenue generator.

Load Balancing

The solution also has full load balancing architecture. Brand Load Balancers manage data traffic based on system throughput loading, number of users or geographic area. It also provides redundancy and resilience and allows the re-direction of traffic for scheduled downtime or maintenance.

Usability / Management

Apollo makes remote access not only reliable by foolproof. The software is so simple to use and configure, and once it is in use it is totally transparent to the user just like a normal LAN connection.

The Apollo solution incorporates an application called 'Customer Care'. This application has been designed to display a huge range of information related to amount of data traffic, number of users connected, authentication successes and failures, and much more. This system allows you to monitor the network at user, group and geographical levels and can be reported in real time to the corporate operation centre.

The solution also supports SNMP for integration into third party management applications. There is also a GUI interface for diagnostics and event tracking or protocol decoding when trying to locate or diagnose potential problems.

Conclusion

- 'Common Solution for a Divergent World'

Brand's unparalleled experience in the mobile LAN market is being developed further to adapt to the changing world of mobile data provision. Brand is consistently developing a modular approach to delivering resilient connectivity via all public networks, whether packet-switched or circuit-switched. Brand will continue to deliver new generation solutions and it will enable the mobile worker to seamlessly connect worldwide to the corporate LAN environment via their choice of networks, taking advantage of all of the benefits of Apollo along the way.

To summarise, Brand understands the challenges of making mobile data access a reality for corporates, network providers and the remote user who just wants a simple solution that he/she can rely on. Brand has implemented many in-networks solutions and corporate projects, as well as being involved in the background work on standards and technical developments.

About Brand Communications

Brand Communications is a global leader in mobile data and remote access solutions. We develop, manufacture and market a range of leading mobile and remote office solutions for all environments including ISDN, PSTN, Fixed Lines, WLAN(802.11b), WIMAX(802.16), Satellite, GSM, HSCSD, GPRS and 3G.

Brands Apollo solution, matured over 14 years of successful deployment makes mobile data a reality for business-critical data applications using Seamless Roaming for users all over the world. It provides a military grade secure connection for the mobile user whilst travelling from location to location, and removes the uncertainty of using a wireless network to transfer vital information by transparently integrating GSM, GPRS and Wi-Fi networking with LAN environments.

Enterprises such as Transco, Unisys, Eastern Electricity, Northamptonshire Police, Lincolnshire Fire and local authorities and armed forces at home and overseas have enjoyed significant business benefits. GSM networks and PTTs have also benefited from increased market share and revenues with Apollo.

Apollo has been described as 'Pure Innovation with a difference – it really works and delivers tangible benefits'. It is for these exact reasons that Apollo has simplified the way in which thousands of people work everyday and has led the world of mobile data communications into the future.

For more information about reliable, effective, highly secure mobile data solutions please contact Brand Communications on +44 (0)1480 442100 or email contact@brandcomms.com