



## WHITE PAPER - SOLUTIONS FOR TRIPLE PLAY HOME NETWORKING PLAY



**The competitive pressures in the broadband market are forcing telecommunications service providers to offer more complete services. One key trend is the provision of video services by DSL providers, who are competing with cable companies to provide "Triple Play" services consisting of video, voice and data, using only the telephony twisted pair.**

One of the most important barriers to the provision of these services is the fact that the entry points of the twisted pair into the home is seldom close to the television, leaving the home owner and the service provider with the problem of connecting the tens of meters which separate the television with the phone socket, or more specifically the Set Top Box with the Residential Gateway. This connection poses a problem for operators because potential customers are not willing to add new cabling in their home, and because the installation of customer premises wiring represents an expensive contribution to the operator's costs.

### PLC Technology

Powerline Communications (PLC) refers to the use of existing electricity cable infrastructure to carry voice and data signals (e.g. Internet, telephony, video etc.). PLC works by transmitting high frequency data signals through the same power cable network used for carrying electricity power to household users.

### Providing a Better IPTV Service

Installing fixed wiring to distribute digital video around the home is not only expensive for operators and unappealing for subscribers, but also restricts the places in the home where subscribers can use services to those where new wiring has been installed. With DS2 PLC it is possible to enjoy Triple Play services anywhere in the home, or deploy multiple services, for example having one Set Top Box for video in the living room and another in the bedroom.

### Acceptance by Subscribers

In many cases subscribers are unwilling to upgrade to Triple Play services either because of the inconvenience of home wiring or for aesthetic reasons. Consumer resistance to new home wiring places a severe limitation on the available market for Triple Play services. DS2 PLC is a no new wires solution. This means that a complete home installation can be done without drilling a single hole or extending any structured cabling.

### The Only Solution with Whole House Video Coverage

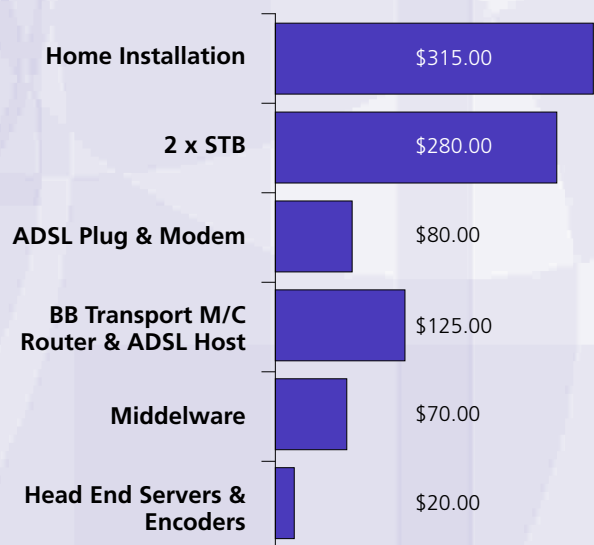
Because it is not attenuated by walls, DS2 PLC technology is the only whole home coverage solution for high-speed digital video. Unlike wireless, PLC's deployment characteristics are also far more predictable improving the enduser experience

### Adding Value through Home Networking

Many operators are currently looking at ways to make their offer more attractive, adding value to their broadband services. DS2 PLC technology allows operators to provide subscribers with building a complete home media network, allowing photos, home-movies and other content stored on a home PC, as well as IPTV and video-on-demand services, to be viewed on a TV set anywhere in the home

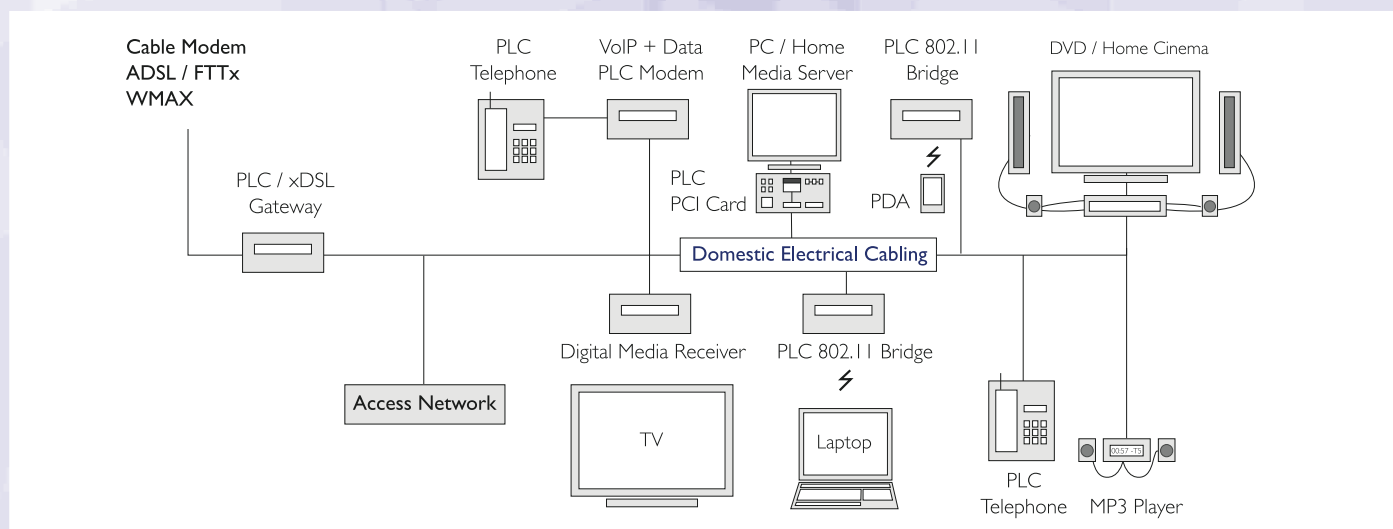
### Costs of Truck Roll vs. Self-installation

Adding structured cabling to a home is not a straightforward task for most consumers. For this reason, operators are forced to include home installation truck-roll costs in their business plan. The need for trained installers is not just a cost for operators; it is a real logistical problem for fast deployment and an inconvenience for subscribers. DS2 PLC technology is literally plug and play, without the complex configuration options of WiFi, opening the possibility of simple self-installation. Eliminating truck roll provides convenience for subscribers and reduces costs and operating overhead for operators.





# POWER LINE COMMUNICATIONS IC FOR AV HOME NETWORKING



## Secure Networking

DS2 PLC technology supports 3DES, one of the highest grades of commercially available encryption, allowing subscribers to rest assured that their local networks cannot be accessed by their neighbors. In addition, support is provided for RADIUS authentication and VLANs, which can help to enhance content and fraud protection for operators.

## Built-in VoIP Stack

As VoIP rapidly becomes the norm for deploying telephony service, DS2 chipsets have been designed with a built-in VoIP stack, allowing the simple addition of IP telephony, with no need for additional home IP-telephony-bridges.

## Extendable Multimedia Services

First it was broadband, then broadband and voice, now Triple Play and In-Home networking. The competitive hurdle is getting higher all the time for operators. DS2 technology supports advanced multimedia Quality of Service transmission, expanding the range of services that can be offered without compromising the quality perceived by the subscriber. Operators can rest assured that their systems will be able to support the increasing range of services that subscribers demand, from the extreme latency requirements of home-gaming to the enormous bandwidth requirements of HDTV. Unlike alternative wireless and PLC home networking technologies, DS2 has designed with multimedia in mind from the start, and for this reason key factors such as jitter, packet loss rate and latency can all be optimized to ensure the best possible end-user experience.

## DS2 PLC: A Competitive Advantage in IPTV Deployment

With DS2 PLC technology it is possible to improve the competitiveness of an IPTV deployment. This is done by improving consumer acceptance, eliminating truck roll, adding value with secure home networking, and providing VoIP capability on a platform that provides a wide range of possibilities for deploying new services.

## About DS2

DS2 is a silicon design house and world leader in the development of chipsets for Powerline Communications (PLC). This technology converts the existing electricity grid and domestic power lines into a high-speed communications network. With a mission to be the leading supplier of chipsets and software to this emerging market, the DS2 200Mbps solutions provide the highest performance on the market today.

## Integrated Circuits

The DSS90XX family is DS2's new product line of digital Integrated Circuits for Powerline Communications (PLC). These ICs provide maximum integration at a low cost. With data rates in excess of 200Mbit/s, the DSS90XX family sets a new worldwide powerline standard.

## Application Programming Interface

To facilitate the development of custom applications for the microprocessor embedded in the DSS9011, DS2 provides a powerful API. This gives developers the ability to extend and adapt the powerful high-level features provided, such as addition of applications using the TCP/IP stack, customization of the QoS, and networking capabilities.

## Development Environment

DS2 has created a sophisticated software development environment allowing custom applications to be developed, verified, and added to the extensive features offered by DS2 powerline chipsets. The development environment is based on industry standard tools for fast and efficient application development.

## Evaluation Equipment

DS2 produces and sells limited volumes of evaluation equipment based on the reference designs. This allows customers to rapidly prototype and evaluate networking projects using DS2's PLC technology, and provides a development platform for network and solution prototyping.