Reducing Cost of Ownership in a DSL Access Network

A Market Insight from Net to Net Technologies Ltd – EMEA

[1] Figures from Net to Net Technologies Customer Case Studies.

[2] Figures taken from Current List Price in Europe

Introduction

The Internet access market is becoming a utility market. The Incumbent Local Exchange Carriers (ILECs) and Managed Data Network Service (MDNS) providers drive the business sector. The home market is consolidating around ILECs and media, entertainment, financial and white/brown goods retail companies. In this environment the drive to reduce the Total Cost of Ownership of the network increases in importance, as it can easily be the significant factor in the difference between a profitable and non-profitable organisation.

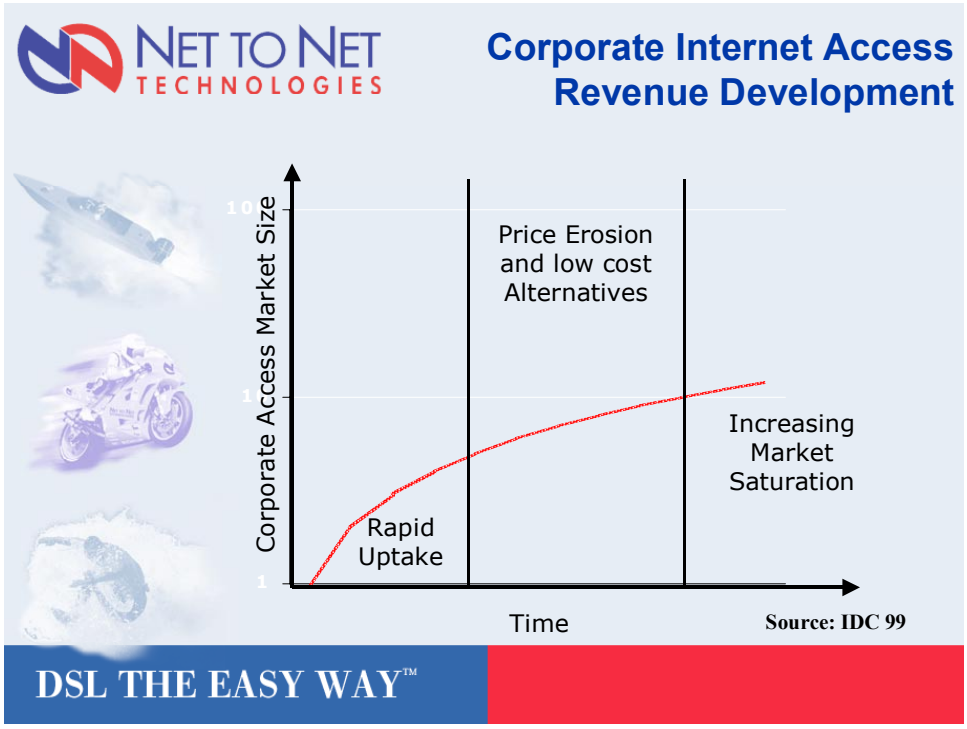

Figure 1

Access Market Revenue over Time

The Total Cost of Ownership issue for DSL Providers

The key issues relating to total cost of ownership for the Digital Subscriber Line (DSL) provider are the issues of upfront equipment costs, rollout costs and ongoing support costs.

Upfront Equipment Costs

[1] Figures from Net to Net Technologies Customer Case Studies.

[2] Figures taken from Current List Price in Europe

Before providers can offer a service to customers they need to have purchased and installed the hardware Customer Premises Equipment (CPE) and Digital Subscriber Line Access Multiplexer (DSLAM) equipment to attach to their backbone network to support DSL. These equipment costs for a traditional Asynchronous Transfer Mode (ATM) DSL solution are around 30 - 50% higher than they are for an IP DSL solution[1]. This is primarily not because of the actual price of the CPE and DSLAM product but because of the price of the backhaul interface and an ATM switch connection to the network.

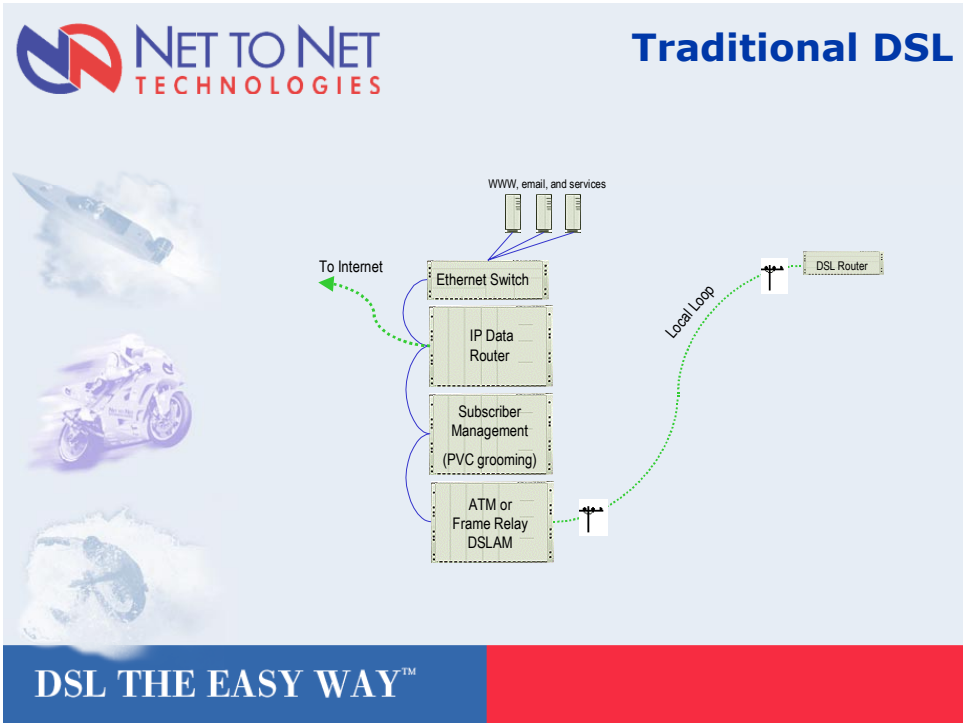

Figure Two

Traditional ISP infrastructure

An ATM switch is likely to be in the region of $15,000-$20,000, depending on the size required, add to that the cost of a PVC grooming device of again $15,000 to $30,000 if you have a large infrastructure to service it becomes a significant outlay[2].

You will always require an IP Switch/router to connect to the Internet, and the interfaces for these to connect to the ATM infrastructure are not inexpensive.

Compare this to the cost of a high-speed Ethernet 100BaseT router interface being in the region of $1-2000[2], a considerable saving can be made at every Central Office where an interface to the backbone network occurs.

Cost is not the only issue; each of these devices has latency, as well as a SNMP management icon status, so there is extra delay and a greater number of disparate devices to manage.

[1] Figures from Net to Net Technologies Customer Case Studies.

[2] Figures taken from Current List Price in Europe

The cost of the backhaul interface on the DSLAM is also reduced, a typical ATM backhaul for a vendor such as Fujitsu or Copper Mountain is in the region of several thousands of dollars, compared to a 100BaseT backhaul from Net to Net Technologies at around $150. [2]

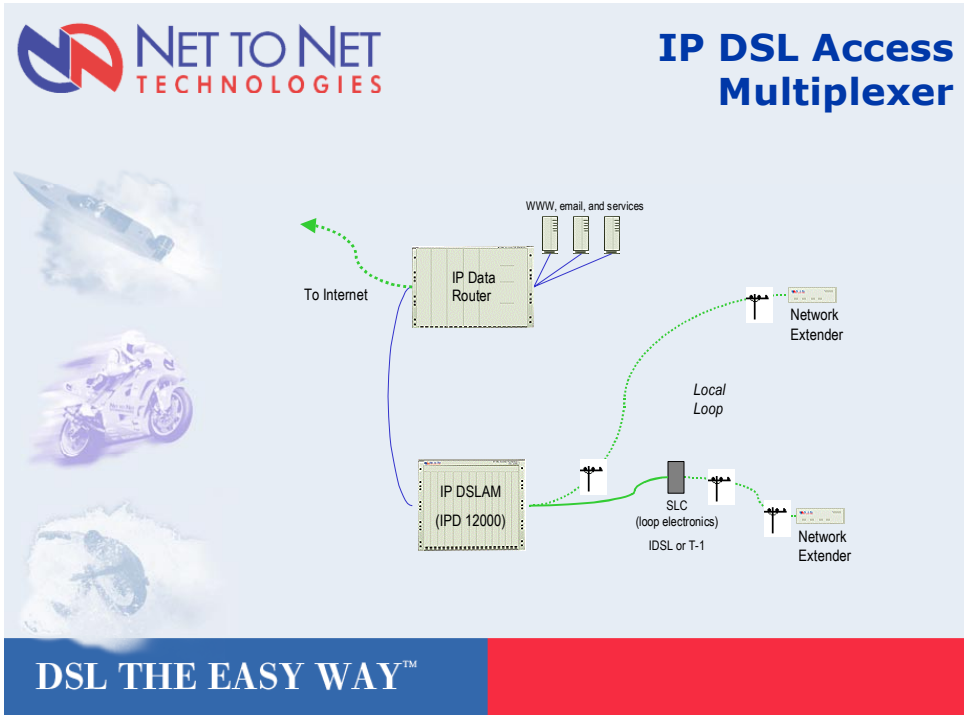

Figure Three

New IP based Infrastructure

Rollout Costs

Roll out with it potential associated 'truck rolls' to customer premises makes up more than 10% of the cost of deploying and maintaining a DSL network for 12 months.[1] This high cost is due to the high cost of deploying to a wide geographical area in a relatively short space of time.

Once a DSL service has been offered to a providers customers there is no guarantees that the customers are going to respond from well-positioned target areas.

Typically our customers report that at least 40% of responses will be from geographical areas where services are not readily available. In order to maintain customer interest the provider's response to a service request needs to be rapid, which means in customer terms between a week and 10 days for the date of request.

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[2] Figures taken from Current List Price in Europe

In order to do this cost effectively the CPE equipment needs to be kept as simple and easy to deploy as possible. A plug and play device that can be delivered to the customer and they simply plug it into the standard telephone socket is ideal. At the Central Office (CO) end configuration and bringing the service live (known as provisioning) also needs to be really simple and quick, being handled by an engineer with a minimum of training and ensuring customer waiting time is kept to a minimum.

In historical ATM based DSL solutions this was a major concern since bringing the service live meant setting up ATM Permanent Virtual Circuits (PVCs) on the ATM switches. ATM engineers today are an scarce and expensive resource, and configuring ATM switches for PVCs is a time consuming and complex exercise, requiring in large infrastructures the need to use a device that "grooms" the numerous PVCs that are generated. This means that the cost of deployment is unavoidably high.

With IP DSL solutions available today the DSLAM is a plug and play device. The Net to Net Technologies AutoIP™ architecture provides the easiest way to deploy a DSL solution on the market delivering IDSL, ADSL, SDSL and E1 rapidly and with lower provisioning costs. AutoIP™ includes an AutoSync line provisioning function which enables subscriber modems to "train" up to the speed that is previously wet at the DSLAM device.

AutoRestore™ provides a backup/recovery services and AutoFilter™ provides a traffic management filtering capability to ensure that traffic on the local LAN stays local and to allow IP addresses within defined address ranges to be authorised to control Internet access.

Using these plug and play features IP DSL solutions can be configured as around one fifth of the cost of provisioning an traditional ATM DSL solution.

Ongoing Support Costs

Maintenance and upgrades are the two schedulable events in ongoing support costs. The more fluent item is trouble shooting and fault finding on the network.

There have been a number of analyst's reports in the last few years discussing the comparative costs of recruiting new customers compared to the cost of retaining and building loyal customers and the business case for creating customer loyalty has been well established. In no other industry is this truer than in the Telecommunications area where special pricing offers competitive offerings are continuously trying to entice customers away from their current providers.

Good and responsive support is critical to a service provider as customer loyalty and customer ownership are heavily influenced by the quality of support provided.

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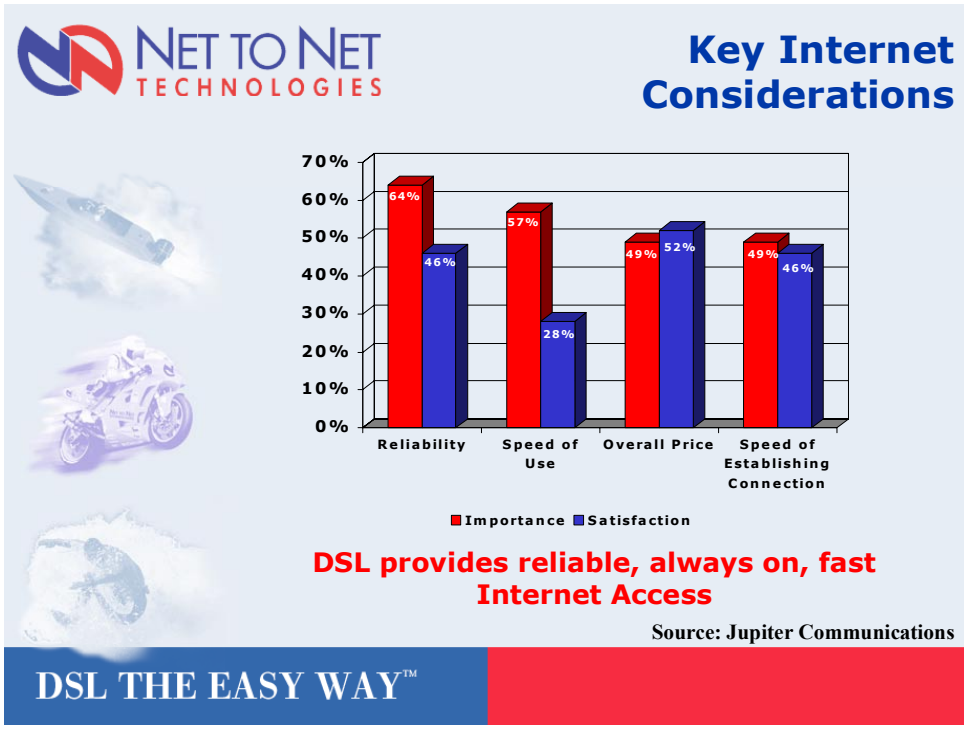

Figure Four

Internet Survey results

The support issue is greatly simplified if the provider can establish and maintain a good team of qualified engineers able to respond to support calls. This was difficult and expensive when the solution is based on an ATM infrastructure but if it is based on an IP infrastructure it becomes more affordable and much simpler.

The simple nature of an IP DSL solution introduces a series of advantages in the ongoing support area. Products are plug and play therefore they either work or fail and need replacement, this avoids expensive, irritating and time consuming phone calls trouble shooting configuration issues. All configurations takes place at the Central Office, avoiding any need to visit the customer premises to trouble shot equipment failures.

All products are manageable using web based management software allowing easy access to devices form a central point without incurring expensive travel costs. ATM solutions are difficult and expensive to troubleshoot and because of their complexity the skill set needed by support engineers is quite complex.

IP router based networks and IP DSL solutions are considerably easier to troubleshoot and maintain, they do not require complex PVCs set up and configuration and a fault or failure in one area is far less likely to effect the whole networks since traffic is not grouped and carried across PVCs.

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Focus on Revenue

The access to the service is in the long term the lowest revenue earning area in the carrier network. This is because the network is becoming increasingly a utility item that simply provides the transport to the services that are actually earning revenue for the provider.

The reality behind this can be seen in the number of free Internet Service access offers in place today in the dial up Internet access market. This trend is increasingly being extended to the DSL access market. The customer expects to have free access, and therefore the provider offers free access supplementing revenue by supporting services such as web hosting, firewall and security services, service level agreements and guarantees of service.

Even today the DSL access market can earn a provider only around $50 revenue per subscriber per month, this revenue can be substantially increased to the $250-$300[1] range per subscriber is services are included.

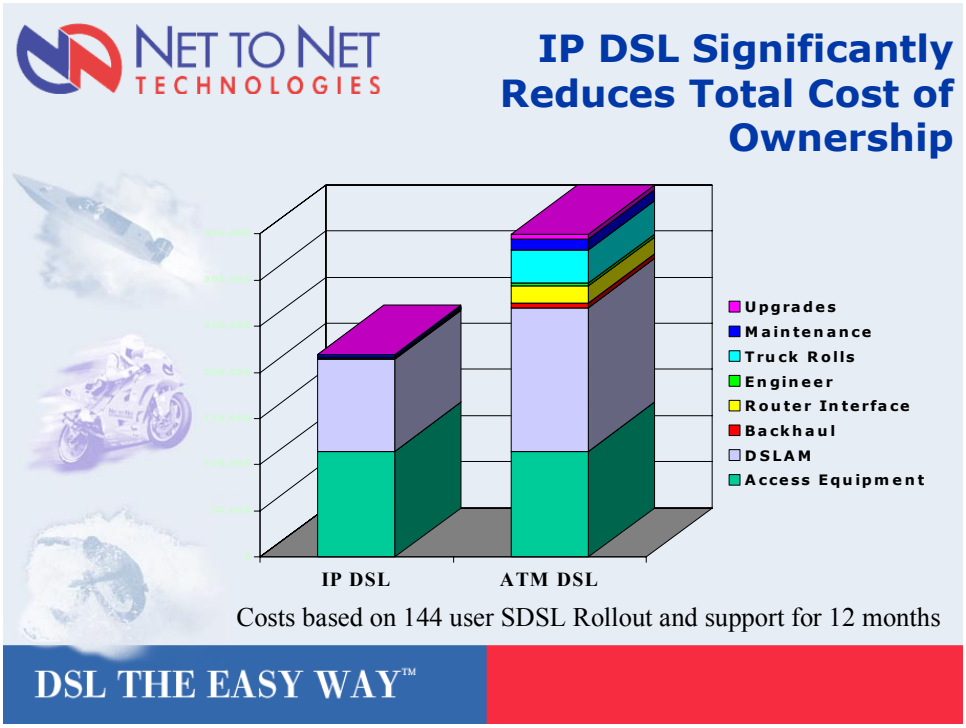

Figure Five

Cost of Ownership differentials between ATM & IP based DSL solutions[1]

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A Simplified Approach to Reduce TCO

IP DSL solutions provide a simplified approach to DSL. Products are plug and play, CPE devices are kept as simple self-learning devices so no set up or configuration is required. The technology base is non-proprietary and based on existing IP and Ethernet technologies that are well known in the industry and for which trained engineers are easily able to be recruited.

The Results

Initial evaluations of Net to Net Technologies customers indicate that an IP DSL solution can provide a reduction of more than 47% in the Total cost of ownership of installing, deploying, provisioning, running and maintaining the network.

Feedback

If you have any feedback on this paper or require any information on any of the Net to Net Technologies products please contact lhansen@nettonettech.com or visit our European web site at http://www.ntn-emea.com or corporate web site at http://www.nettonettech.com.

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