pronto networks

Enabling the Next Wave of Connectivity™

After the Goldrush

OSS Platforms for Hotspot Profitability

WHITE PAPER

Introduction

The Wi-Fi hotspot industry is currently in the midst of a virtual land grab as operators scramble to secure the choicest venues and to establish the largest footprints. And while the seeming disorder of the hotspot marketplace may be somewhat unnerving to those accustomed to traditional networks, it is scarcely to be deplored, and is actually indicative of the health and vigor of the industry. Still, as in the case of the actual land grabs of the past, this one must soon be succeeded by market rationalization and by the systematic administration of the properties themselves if the "land holders" are to stand any chance of profiting in the long term. Ad hoc management of vital business functions, i.e. provisioning, fulfillment, billing, monitoring, and supporting stipulated service levels, is simply unacceptable. Unfortunately, inadequate OSS (operations support systems) software and haphazard deployment and management procedures are the norm within the young hotspot industry, and the revenue potential of many of the sites is not being realized as a consequence.

That more suitable management platforms have not been made available by many manufacturers is hardly surprising. Hotspot operators themselves are a diverse lot, including incumbent landline telephone carriers, mobile carriers, ISPs, DSL and cable data operators, and a multitude of independents. As such, developing a platform that can accommodate such diversity isn't easy. Yet Pronto Networks offers just such a product platform — one that is flexible enough to meet the requirements of service providers with extensive legacy OSS platforms, but is highly specific to the needs of a hotspot network.

The Limitations of the Prior Art

Pronto Networks is scarcely alone in providing OSS software to hotspot operators. More than a score of companies have developed software suites for automating hotspot management and administration. Some of these products are actually quite well executed, but what is lacking in almost all of these products is a comprehensive and unified approach to operating a network — in other words, a single vendor integrated provisioning and OSS solution that will allow an operator to set up a hotspot quickly and begin selling reliable services expeditiously and profitably.

Except for some specialized offerings aimed at the operators of small, single base station services, almost all hotspot software products to date have addressed only one or at most a few of the needs of the network operator. Some products have focused on authentication, some on network security, some on billing, several on roaming, and quite a number on integration with pre-existing mobile telephone data services. But none has offered an integrated software support package.

For this reason, many hotspot operators have been driven to attempt multi-vendor solutions. Such solutions are invariably suboptimal because the various software applications must interoperate at some level, and because the requisite hooks to integrate the subsystems are rarely present in the products themselves. To be sure, integration of OSS subsystems has been a pervasive problem throughout the telecommunications industry, but large carriers can afford to employ considerable numbers of specialists to program network-specific fixes or even to create whole subsystems for internal use. That said, very few independent hotspot operators have the resources to follow such a strategy and, given the imperative to establish a presence in a give market before competitors can do so, even the largest incumbents would prefer to have a comprehensive and flexible third party system in place rather than attempting to create one themselves.

Features and Functionality of a Well Engineered Hotspot OSS

The first attribute of any truly adequate OSS for hotspot operators is that it represents a fresh design initiative—that is, has been designed from the onset to meet the unique needs of both the hotspot operator and his or her clientele. Such an approach is necessary because hotspots are fundamentally distinct from other types of public networks—or, for that matter, from the private networks from which hotspots were ultimately derived.

Hotspots themselves constitute re-purposed technology, being derived from the enterprise wireless LAN which itself is very lightly administered by telephony standards. Such deficiencies in the management of devices and users turn out to be crucial, and anyone hoping to adapt network management software from the enterprise environment to the public setting is almost certain to suffer disappointment. Simply put, enterprise LANs have only users, not customers. They were never designed to generate profits. And yet many software platforms do little more than retrofit a few billing options on what are essentially private LAN Ethernet administrative solutions. This is clearly inadequate because public networks operated for profit must support usage patterns that simply never occur in the enterprise.

So what are these usage patterns and what needs do they engender?

The most salient aspect of hotspot usage to the design of the OSS is that it is intermittent and that user population is not fixed. What this entails is a vast extension of the provisioning process vis a vis traditional networks. In essence, service provisioning must occur for every session initiated by a nonsubscribing user. For similar reasons, the authentication process becomes supremely important as well, and must exhibit extreme flexibility to accommodate various methods of authentication in common use today throughout the industry.

A Look at the Basic OSS Components and How Pronto Has Adapted to the Hotspot Environment

In practically every modern public communications network a highly automated provisioning process must be established if the network is to operate cost effectively—provisioning being the process of making the service available to the customer. But in the management of hotspots, provisioning assumes particular importance for just the reason stated above — namely, the prevalence of the nonsubscriber in the customer mix.

In order to attract that person, the service must be made immediately available upon the submission of a valid form of payment and with no requirement upon the part of the user to download configuration software or to go through a manual configuration process. Futhermore, the visible provisioning process must occur through commonly available browsers already residing upon the user's terminal. Both conditions are in fact met in the Pronto system.

Furthermore, the provisioning software should allow remote provisioning of the access device, bulk provisioning of existing accounts, and self provisioning by the user. Pronto fulfills all of these requirements as well.

An added benefit of Pronto's provisioning capabilities is that it permits private labeling of the operator's service. The end user of the system is in effect buying the operator's individual service offering, not the platform developer's brand as is all to often the case with competing products.

Because provisioning and billing tend to coincide when the casual user accesses the network, the software modules governing each must be closely conjoined. Which is precisely the case with the Pronto platform. Pronto was the first software vendor in the business to provide an integrated approach to provisioning and billing, and it remains the leader in this area.

For the hotspot operator who would provide subscription services as well as pay per session offerings, a sound authentication procedure is also must. Pronto supports industry-standard radius authentication as well as authentication via pre-paid cards and MSN Passport.

Engineered for Reliability

The words carrier grade are certainly overused in promotional literature and frequently applied to products that scarcely merit the description, but the concept behind the words is perfectly valid. Equipment operating in public networks really should be held to higher standards of reliability and availability than equipment intended for internal use within private organizations.

Carrier grade reliability is a must for the long term survival of any hotspot operator. While early adoptor

users may be willing to accept compromised service to enjoy the novelty of high speed wireless access in public places, the anticipated mass market of business users will not.

Carrier class dependability is ensured by many attributes of system design, including physical redundancy and the use of hardened components. However, overall design and engineering play an even larger role, and built-in, Web-based monitoring functions that can detect fault conditions before they disable the system are crucial to meeting traditional telephony standards of reliability. Again Pronto has taken a leadership role in this critical aspect of system design.

Another prerequisite is the maintenance of the customer data base at a secure location separate from an individual hotspot access point, a key benefit of the Pronto platform. The norm among lower priced installations is the "hotspot in a box" approach, where all relevant software resides on a combination gateway-controller. Serious public networks have never operated on such a basis and neither should the hotspot operator who aspires to be serious.

Support for Value Added Services

The hotspot industry today is generally concentrating on providing basic Internet access and nothing more. Such a strategy will suffice for the short term but is ill advised in the longer term because it provides no basis other than pricing policies for distinguishing one service provider from another. Successful hotspot operators of the near future will quickly expand their range of service offerings and will differentiate their hotspots on the basis of what they can bring to the user experience that is new and distinct.

Pronto is already capable of supporting differential bandwidth allocations and priority levels to users based upon a tiered pricing model, and currently supports high-speed, multiplayer gaming connections and "walled garden" content and applications specific to the individual site. In the future, Pronto's platform will accommodate numerous other services that are not yet available in existing hotspots but will eventually serve to define the successful network operator. These will include packet voice, conferencing, location-based services, and paid content downloads. Furthermore, successful hotspot operators will partner with application and content vendors who can provide such value adds and who insist upon the kind of secure wireless computing environment that Pronto provides.

Roaming and Network Transparency

Over the course of the past two years, an increasing amount of attention has been devoted to issues of customer roaming from one hotspot operation to another and, beyond that, allowing the customer to transition between hotspots and 2.5 and 3G networks, utilizing hotspots for data transmissions when available, and resorting to medium speed cellular and PCS data services when out of range of a hotspot. Given the large number of independents offering hotspot services and the fact that no one in the U.S. or elsewhere has anything close to a nationwide footprint in a place, the emphasis on roaming and service aggregation is understandable. At the same time, one must be aware that roaming is but one requirement for a successful operation.

Pronto's billing module certainly supports roaming arrangements, but Pronto is not in the business of branding such arrangements in the marketplace. Pronto does, however, have agreements in place with the three leading hotspot aggregators — Boingo, iPass and GRIC. Permitting roaming at one's site is an excellent way of increasing traffic, and in time roaming will be ubiquitous just as has been the case in the cellular industry. In fact, roaming clearinghouses will emerge over time for the public WLAN market, just as they did in the cellular industry.

The Larger Context

Traditional telecommunications has been very much a standards-based business. Carriers do not wish to be tied to proprietary single vendor solutions, and normally insist upon second sourcing whenever it is possible. With the growing presence of telco incumbents in the hotspot industry, there is an increasing need for products that are fully compliant with existing standards and are extensible, that is, readily adaptable to emerging standards that have not yet

been finalized. Pronto software meets both criteria.

Specifically, Pronto supports Radius AAA authentication, SIM authentication, 802.1x security, IPSec, SOAP, and SS7. The last, which forms the basis for all automated signaling functions within the PSTN, is among the telephone industry's most durable standards. As hotspot networks are integrated into the PSTN, SS7 will figure ever more prominently in the administration of hotspots themselves.

Because the Pronto platform is standards based and designed around the needs and requirements of large carriers as well as independents, it has a unique ability to coexist with legacy OSS supporting traditional telephone services, and indeed it is flexible enough to permit two distinct levels of integration. The Pronto OSS can function as a network overlay beside an incumbent service provider's existing OSS, but it can also merge with the latter as hotspot and traditional services gradually converge and complement one another.

Easing Network Administration

A distinguishing characteristic of the Pronto platform and one that is of grave importance to the hotspot operator is the breadth and pertinence of its reporting options. Pronto lets the operator know the amount of activity at each location and at each access point, the times in which sessions occur, and the revenue breakdowns for each. All such information is instantly available to authorized parties and can be used to assist in planning network expansion.

Pronto further provides for highly secure, centralized network management of just the sort prevailing in incumbent mobile and wireline services. The network operator has the option of self administration or fully outsourced management by Pronto's team of professionals through Pronto's Hotspot Managed Services™. In either case, the same proven software modules are employed and the same integrated approach to OSS is followed.

The operator who opts for the Hotspot Managed Service will be pleased to know that the business model is based on revenue sharing. This permits the operator to grow his or her business incrementally and avoid a large initial outlay for support services.

Pronto software also permits remote upgrade of access point software across all of the leading hardware platforms. Single console network management becomes a reality with Pronto.

But perhaps most significantly, Pronto software helps the network operator to generate profits. Pronto supports extraordinarily flexible billing options permitting pricing differentials according to time and frequency of usage on the part of the customer, mode of payment, service level, and so on. Thus, preferred customers can be offered special rewards and inducements. The same software will also facilitate cross promotion involving merchandise and services when the hotspot is not the operator's primary business. Finally, Pronto's software allows for payment by credit card, foreign currency, prepaid calling cards, and coupons.

Enhancing the End User Experience

Many of the same features that ease the task of the hotspot operator also serve to increase the satisfaction of the customer. Obviously, billing options that reward customers increase customer satisfaction, and the same comprehensive reporting functions can be used to generate instant billing statements for users. Pronto also enables the operator to craft personalized services for the subscriber. Furthermore, Pronto supports the use of remote peripherals such as printers, providing customers with capabilities beyond simple Web surfing.

But perhaps the sheer ease of use of the Pronto hotspot portal is the most tangible customer benefit. Pronto immediately presents the customer with a customized home page via any common Web browser, and log in and authentication is accomplished with single procedure. The user is online literally within seconds of opening his or her laptop.

Meeting the Needs of Diverse Network Operators

Pronto's platform has been embraced by the full range of network operators-- committed independents, wireline and mobile telecommunications carri-

ers, cable television system operators, DSL service providers, and ISPs. Modular and scalable, Pronto software can support a single strategically located site, or scores of access points distributed throughout a large metropolitan area. But whatever the scale of the network, the business case for Pronto is proven and the potential for profitability is unsurpassed.

Making the Business Case for Hotspots in Your Business

Pronto Networks is not the leading purveyor of hotspot support software for nothing. Pronto has played a big part in the success of scores of operators around the world, including independents of all sizes as well as large incumbents. The current hype notwithstanding, hotspots must be managed for profitability like any other business. Pronto provides the operator with tools to do just that.

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