

## **A BSI BuildingNet™ Goes Beyond Bandwidth**

### Our vision

Six years ago many businesses needed to know what the Internet was. Today businesses need to know how to use the Internet. Six years from now, tenants in multi-tenant building will expect their buildings to provide many Internet services and applications. In fact, the Internet will be viewed as yet another utility.

The buildings of today are just beginning to provide Internet bandwidth to tenants. Forward-looking landlords are beginning to provide Internet services and applications. Your building can and should share much more than just Internet bandwidth. A broad range of networked services can be offered by the building itself. The real benefits for tenants are reliable, up-to-date, and customized networked services. The hottest idea for multi-tenant buildings is the building network (“BuildingNet™”) from Bristol Systems Inc. A BuildingNet provides tenants with shared networked services such as security, performance enhancements, intranets, backups, secure high-speed storage, encryption, telecommunications and application services. The BuildingNet customizes these shared networked services to changing individual tenant needs. This integration of applications and services is expensive to achieve for small to medium sized tenants, unless it is provided as part of the building’s services. A BuildingNet does this. A BuildingNet combines sharing, customizations, and remote management in a way that is cost effective for tenants and profitable for landlords.

To get a feeling for the portfolio of services that a BuildingNet provides, we will discuss several examples. We start with security, since it is the most important.

### Security and Virtual Private Networks

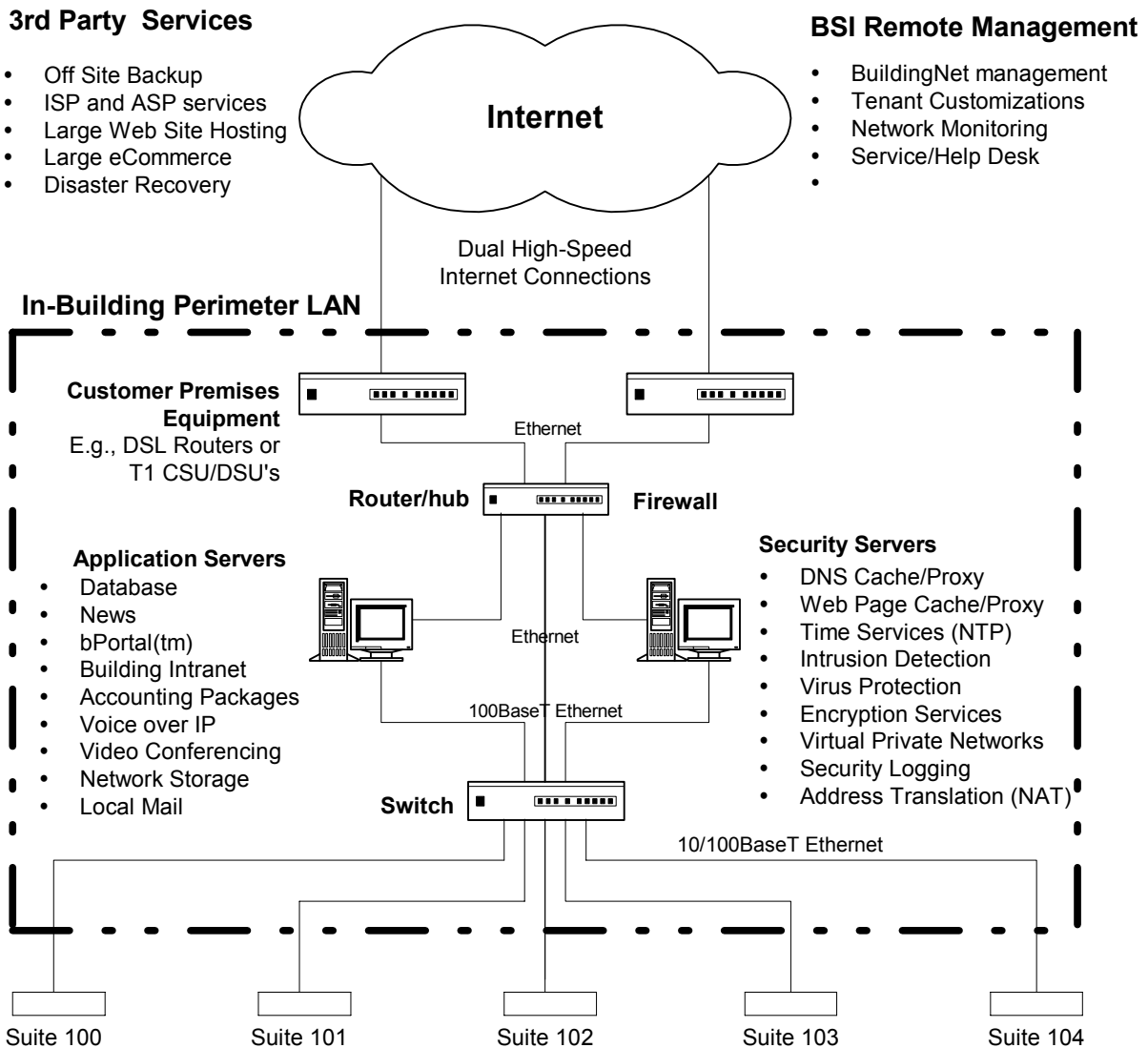
Any system connected to the Internet needs a variety of security measures. The basic security ingredients are firewalls that make hacking difficult, intrusion detection to raise alarms on suspicious activity, virus protection to guard against attacks from malicious programs, and encryption to provide additional privacy and user authentication.

Using the ability of a BuildingNet to customize configurations for each tenant, the security measures can also be customized. This customization allows tenants to choose levels of access and use of their systems, levels of privacy, and levels of performance for secure communications. At the same time, the very best security components can be shared to provide the highest performance, security, and reliability for very reasonable costs. The BuildingNet also can ensure that communications within the building are private. One tenant cannot “eavesdrop” on another tenant’s communications.

These security mechanisms also provide tenants with external and in-building Virtual Private Networks. This allows tenants a number of ways to create secure connections with their customers, suppliers, and external offices. In addition, within the building, very high speed Virtual Private Networks are a beneficial consequence of the BuildingNet design. In other words, one tenant can have secure high-speed communications with another tenant within the building.

Any attempted hacking from either the Internet side or from within the building will be logged and investigated.

## **The BSI BuildingNet(tm)**



The BuildingNet makes the most out of the building's Internet connection. The BuildingNet services are hosted where tenants benefit the most. Applications are hosted in the building, at a third party site, or at the central management site depending on security, reliability, performance and cost. For example, large eCommerce or web page hosting is best done outside the building – usually at a site that specializes in that type of service. This allows very high-speed access to the web pages, and this access does not take up the shared bandwidth to the building. Shared database services are best done inside the building where high-speed access to the database is possible. Services to assist tenants manage their networks are best collocated at the BuildingNet remote system management site.

### Optional Application Services

A BuildingNet offers the opportunity to share applications reducing the cost of licensing and system management. This can make the building an Application Service Provider (ASP), with the applications residing in the building. As this does not use the Internet bandwidth, access to these services is typically 100 times faster than access to Internet based ASPs. The BuildingNet can provide both local application-sharing for applications that are enhanced by improved local performance, and also can provide remote application sharing for situations where performance isn't an issue and the tenant is comfortable with private data being stored outside the building. A good BuildingNet provides both local sharing and also connections to one or more external ASP services.

### Services to Improve Bandwidth Performance

The BuildingNet provides ample opportunity to optimize the shared Internet bandwidth to the building. The fundamental idea is to utilize the BuildingNet to share with the tenants' copies of pages and other information that multiple individuals in the buildings would use. Popular downloads and web pages are simple examples. These services include high performance web page caching, time synchronization, name services, IP address management, stock market prices, weather and traffic reports, and Internet news. These are all designed to make Internet usage simple for the tenants and to maximize the advantage of the shared bandwidth.

### Additional Applications

Being hosted on the BuildingNet enhances many applications. Important examples are secure file transfer, building intranets, email services, voice to text conversion, video conferencing and voice-over-IP teleconferencing. The BuildingNet is the perfect mechanism to share facilities for such services. This gives even the smallest tenant all the capabilities of a large company with a large networking group.

### ASP access

Using volume-licensing agreements, tenants can get discounts with third party Application Solution Providers. This is particularly important when only one tenant wants to use a specific application. Another important example is the delivery of data from a proprietary application, e.g. Nexus/Lexus. The BuildingNet management makes all connection and licensing arrangements over the Internet in just a few minutes.

## Backup

The servers on the BuildingNet can also coordinate Internet-based backup for all the tenants in the building. This coordination allows the maximal use of the building's Internet bandwidth while files are being backed up. Internet backup combines clever selection of the files that need to be backed up (for example most operating system files do not need to be backed up), encryption and compression of the files, and clever indexing so that it is easy to recover specific files. This scheme never permits unencrypted tenant data on the Internet, and only the tenant can de-encrypt its own data. In particular, the BuildingNet system management can recover a file for a tenant, but it cannot de-encrypt it.

## Teleconferencing and Video Conferencing over the Internet

The BuildingNet provides a mechanism to provide all tenants with Internet-based teleconferencing and video conferencing. There are no long distance telephone charges for these services. In addition the email systems that are part of the BuildingNet have "Universal Messaging". This means that voice-mail can be treated just like an email attachment and can be routed anywhere. This integration of voice-mail and email greatly simplifies office solutions for tenants with a BuildingNet. Desktop video conferencing is supported in both encrypted and unencrypted formats.

## Customized Services – The bPortal™

The building's intranet provides weather, news, traffic, restaurants, reservations, etc. that are customized to the locale and to the tenants' preferences. Hate advertisements? How about only those you want? Even ads can be customized for tenants. This delivery on the building's intranet provides a look-and-feel to the building's networked services that can have a uniform appearance among a given owner's buildings.

### Landlord Benefits:

- The building generates additional revenue for the additional services.
- The building justifies a higher valuation.
- The landlord will realize a major cost savings through higher tenant retention and reduced vacancy rates.
- BuildingNet features attract and retain premium tenants.
- Advertising the building as "full featured building network" gives a state-of-the-art business image.
- The network security provided by the BuildingNet supplements the general building security and can be marketed by the landlord as "additional security".
- Operational responsibility and maintenance are remotely provided.

## Branding

Many applications provided by the BuildingNet can be "branded" by the landlord. This branding consists not only of a common look and feel across applications, but it also consists of uniform installation, configuration, and system management. In other words, the BuildingNet can provide a tight integration among its applications while providing tenants with considerable choice of what applications they want.

## Using Multiple Bandwidth Providers in One Building

In larger buildings, multiple bandwidth providers frequently bring high-speed Internet access into the building. Often this bandwidth is metered, i.e. tenants pay for what they use. This permits the building owner to provide an immediate new service to the tenants allowing the

simultaneous use of multiple bandwidth providers. This has two advantages. First, every tenant has access to the total amount of bandwidth to the building, and second, if one bandwidth provider is either down or has a slow-down, then the tenant Internet traffic can be routed appropriately. This is particularly effective when one bandwidth provider uses wireless and another uses land lines. In this case, it is very unlikely that both will be dysfunctional simultaneously.

This approach reduces wiring in the building, since the building owns the building network, and this includes the wiring from the tenant suites to the central wiring room. This wiring can be used to access all BuildingNet services and all Internet bandwidth providers. Not only is there less wiring, there are fewer intrusions by installers. Buildings that are already wired can evolve to this approach over time.

### Older Buildings Need an Upgrade.

The Yankee Group estimates that nine million buildings will introduce shared Internet services within the next two years. Though newer buildings are including many of the Internet ready features in new construction, comparable service is not available in many of the existing buildings. In order to remain competitive, the building owner or manager must upgrade their existing buildings and offer services that meet their tenant's needs. Upgrades with a BuildingNet in mind can save considerable money long term.

### Performance

The BSI BuildingNet provides several features to improve the performance of the building's Internet connection. Speeds can range from DSL speeds for small buildings through 400 Mbs over multiple fiber links. When multiple bandwidth links are used, tenants can be guaranteed very high availability rates as well on this bandwidth, i.e. they can be guaranteed 100% of subscribed bandwidth throughput with guaranteed Committed Information Rates (CIR).

Currently a single user can overload shared bandwidth. This is a common complaint of residential cable modem service. Using patented technology a BSI BuildingNet guarantees appropriate bandwidth sharing. In other words, when bandwidth is available, one tenant can use it all, but when the bandwidth is being shared, tenants that have been using lots of bandwidth are throttled back so that other tenants get their fair share. Usually this bandwidth allocation scheme is totally transparent. In fact it is only visible to tenants

### Tenant Benefits

- The BuildingNet enhances the security and the performance of the full suite of Internet functions, such as sending and receiving email, transferring files and documents and browsing the World Wide Web.
- Additional shared applications are provided at additional savings to the tenant.
- Voice and Video Conferencing are included.
- Hookups and customizations for an individual tenant can be provided in hours and requires no in-house technical expertise or expensive setup or consulting fees.
- A customized network security service is provided at no additional cost.
- A connection of the tenant's Local Area Network to the Internet can be made without any additional hardware.

that are heavily using the bandwidth.

### Reliability

Even the smallest buildings can now have increased reliability through the use of the highest quality components, continuous monitoring, and 24-hour remote system management. Additional reliability features can be purchased both by the tenant and by the landlord for all tenants. These include uninterruptible power supplies (UPS), backup generators, redundant servers, redundant routers, and multiple links to the Internet (ideally different types of links.) Increased reliability measures definitely increase the cost. Not only is there additional hardware, there is fail-over logic that needs to be implemented so that when one component fails, a redundant component takes over. Finally there is additional system management in a redundant system that also adds to the cost. The good news is that redundancy in the BuildingNet is shared across the tenants and thus provides a lower cost solution to high reliability for tenants.

### Tenant Networking Help

The mechanism used to manage BuildingNets can also cost-effectively help tenants manage their local area networks. Many system management tasks can be done remotely using our management facilities. These include system upgrades, local firewall programming and maintenance, network monitoring, error log analysis, etc.

### The Advantages and Benefits of a BuildingNet

The installation of a BuildingNet into a multi-tenant building offers significant benefits, not only for the all of the tenants, but also for the owner and building manager.

The basic landlord benefit is to have critical added-value services provided to the building tenants. The tenant will pay for these services, and the building owner receives a portion of the revenue. This in turn increases the profitability and valuation of the building.

The basic tenant benefit is to have a customized suite of networked applications and services delivered and maintained at a far lower total cost of ownership than buying them independently.

### Conclusion

BuildingNets and bPortals are being utilized as an affordable means of providing the highest quality networked services into multi-tenant buildings ranging from Security Services to Voice and Video Conferencing. Tenants of buildings with a BSI BuildingNet get, at a very low cost, all the features of a sophisticated network that only large companies can afford. The Bristol System Inc. BuildingNet is the industry leader in multi-tenant building networks. Contact Bristol Systems Inc. at 714.532.6776 or email us at [info@BristolSystems.com](mailto:info@BristolSystems.com) for further information.