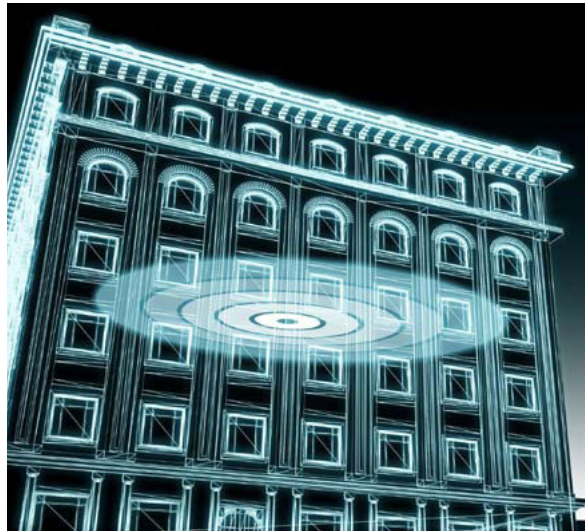


In-building wireless – the next step for Asian enterprises

Colin Abrey explains why in-building wireless is the best way to provide consistent service to enterprises and leverage emerging standards.



With Asia's rapidly growing economy, more enterprises are demanding mobile bandwidth than ever before. What's more, individual Asian enterprises require more and more bandwidth due to the increasing sophistication of business applications, the trend for mobility and the increasing use of cloud apps.

In China alone, 60% of 2G traffic and 80% of 3G traffic occurs indoors. Growing indoor use of wireless services is happening globally but more noticeably in Asia PAC due to predominately hot climates driving people indoors, especially during business hours.

Urban black spots

Many operators are still trying to deliver mobile coverage to subscribers via the traditional macro base station network. However architectural 'black spots' in building infrastructure, coupled with the use of materials such as heavy steel and thick concrete, means that in-building penetration of wireless signals weaken considerably.

This is particularly true in Asia where highly attenuating materials like tinted or polarized glass are frequently used in new buildings to help reflect strong sunlight.

The problem is exacerbated further by the continuing growth in Asia of

3G phone use. Because 3G uses even higher frequencies than 2G, penetration of radio signals are even more susceptible to attenuating building materials, leading to reduced data rates and in some instances, complete loss of signal when indoors. This problem will be magnified in higher-frequency emerging standards such as LTE and WiMAX.

However, as poor bandwidth decreases productivity among other issues, it's crucial for the sake of continuing Asian competitiveness that Asian businesses address this issue.

Staying competitive in Asia

This is where in-building wireless (IBW) systems provide the solution. IBW, as a complement to existing macro base station networks, is the best way for operators to monetize emerging standards and provide consistent service.

By making it easier for individuals to access the mobile network indoors, particularly for next-gen standards that would otherwise have more limited indoor coverage. Operators can glean additional revenue from each user.

However not all in-building systems are created equal. A notable caveat is that most in-building wireless systems are 'single service'. This means that they can only support one, or perhaps two, wireless standards at a time. Femtocells for cellular and Wi-Fi routers for broadband are examples of this.

While excellent for simple home-based setups, or single-carrier cellular coverage, single service solutions are typically not appropriate for business environments that require a multi-carrier, multi-service solution. Moreover it is neither techni-

cally sensible nor cost-effective to layer these single-service solutions on top of each other.

So far the only real route to 'multi service' in-building wireless is distributed antenna systems.

A Distributed Antenna System (DAS) works by essentially amplifying wireless signals from a nearby macro base station and distribute them around a building via a series of antennas; typically ceiling or wall-mounted. And as they can work across multiple standards these systems tend to incur less CAPEX for multi-service environments such as the workplace.

'Passive' DAS uses a network of coaxial cables, couplers and power splitters. Passive distributed antenna systems are typically more suitable for deployments in smaller buildings due to their tendency for signal die-off over larger distances.

However, passive DAS components are frequently heavy and difficult to install. Passive DAS also has no remote monitoring, which means they require more time and investment to maintain.

'Active' DAS, on the other hand, use more reliable optical or RF cable. As these systems are also actively self-monitoring, active DAS tend to both be more reliable and incur less maintenance costs.

After considering the multi-service question businesses should also look for solutions that are 'wideband'. Certain systems are only able to handle a narrow range of radio frequency signals. The narrower this band, the greater the expense in adding new and emerging standards such as LTE and WiMAX. Future-proofing comes from having one system that covers the widest range of frequencies, and requires no additional components or expense to upgrade.

Who foots the bill?

There is a debate over who should foot the bill for in-building wireless solutions; the businesses that utilize

them and profit from them, or the networks that stand to profit from the business, or both?

For example, if networks foot the bill would the business have to commit to a single provider, or would several networks share the cost for a multi-operator system? However, it is clear that there are concrete advantages to businesses and networks alike.

It's well known that networks glean higher average revenue from business users than from any other group. Asia-Pacific is the world's largest mobile phone market with 2.1 billion subscribers, and provision of better IBW means operators stand to considerably increase average revenues per user (ARPU) and subscriber penetration, while decreasing customer churn.

Better and more consistent service can help strengthen a network's brand. The extra revenue generated by covering extra business customers can also offer networks a fast ROI of up to 20 times.

Business advantages

The advantages to businesses themselves are also substantial, and should encourage enterprises to buy into IBW.

At its most obvious level, clear and consistent wireless communication helps companies maintain a competitive edge. In-building wireless can offer consistent wireless access to email and the internet, and can enable a consistently good mobile communications experience. This, in turn, allow employees to be more efficient in their daily work, responding to the needs of the business faster and providing better levels of service to customers. Generally speaking, good wireless may encourage collaboration, increase productivity and improve staff morale.

Dedicated in-building wireless also allows companies to meet individual user needs and, where appropriate, regulatory requirements

to provide wireless coverage for the sake of public safety and emergency services.

Businesses can use in-building wireless to achieve a greater degree of control on their own properties. They can stream services or announcements to certain areas within their building, or use the system to monitor staff.

Businesses can also automate and secure their building with in-building wireless, providing ready wireless communication with door locks, alarms, motion sensors. Light and heating sensors can also allow a company to reduce energy costs and environmental impact by around 35%.

There are certain advantages that are more specific to individual industries, especially the service industries. For example, the availability of wireless reception at hotels, cafes, shopping malls, conference halls, concert venues, will directly effect the customers choice to return. Customers will offer greater loyalty to an organization that gives them clear, fast wireless reception.

Other industries simply carry with them conditions that necessitate in-building wireless, for example industrial settings; where often there are areas that are totally impenetrable to radio signals; underground or behind thick walls and equipment. Industrial settings also carry safety implications, which further necessitate ready communications – whether via mobile, push-to-talk or two-way radio, or paging.

For Asian operators in-building wireless stands to be the next big thing in providing optimal wireless services to high-value customers. For enterprises, I would argue, IBW simply makes for better business.



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