

# The Revolution of the Open Architecture.

By Steve Gould

What's been holding back the Smart Room technology reaching the actual Guest Room? the answer isn't the technology to implement the Smart Room, but the method by which these technologies can be deployed and actively managed. With the rate at which technology is advancing, the community is uncertain as to how much and when to invest in Smart Room technologies and most importantly what vendors technology will be the best. This paper explores this challenge and offers a new philosophy in addressing the "investment" and future of Smart Room technologies in the Guest Room.

*Why Smart Rooms?* Certainly the franchises want the benefit of the smart room, with all the bells and whistles, for many disparate reasons. The most prevalent is the opportunity to increase brand loyalty - remembering that the customer is king. The brand that can provide the exact "configuration" of a room to a guests specific comfort points is the brand that will win the guests business. Imagine a room that is tailored to the individual based on their personal profile, a room where the channel lineup is programmed to be the guests 10 specific networks on predefined channels, or that the temperature controls automatically drop at 10:50pm to the guests sleeping temperature, but then rise at 6:50am. A room whereby the lights slowly increase beginning at 6:50am, the TV comes on at 7:00am, and the volume incrementally increases every minute until movement is detected and the guests agenda, travel arrangements, and new emails are displayed on a "home channel" on the TV. This is a customized guest room that will not only win the guest loyalty but the "replacement costs of time and effort" will keep the guest from moving to other brands.

Of course there are other reasons, not the least being cost savings, controlling the expenditure of energy in unused rooms, i.e cooling, lights, managing window coverings, or reducing the labor of managing the room, i.e. room status, tracking mini-bar usage, and room quality assurance. But these are all secondary, as they represent a savings to the individual operator, but are not activity increasing the revenue, or luring customers into the facility.

*What's taking so long?* The question then is "why slow deployment or lack of deployment of the Smart Room?". As a technologist working with hundreds of properties and actually being the first wireless vendor to brief Cendant Corporation on the advantages of wireless networking in 2002 I also possess an extensive background in systems engineering, and Total Cost of Ownership and the specific component Reoccurring Cost Assessment the answer are straight forward.

The most apparent issue is that the cost of getting into fielding and maintaining a solution is uncertain; the ultimate technical solution is uncertain; and, because no one brand, chain, or major franchise has moved on claiming the smart room the competitive need hasn't mandated the requirement.

This is all about to change. Certainly, many major brands are recognizing that the end consumer is asking the question "Why can't I have this?" and now the realization that the customer is going to drive the deployment is bringing pressure for the decision makers to move forward. With these pressures, just like the Wireless Revolution in 2004, once one major brand jumps into the market and declares "Smart Rooms Here!" it will be an open rush for every brand to implement the Smart Room or fall by the wayside.

*It's too painful, my head hurts.* The dilemma is that until this point the most compelling reasons for avoiding the effort, uncertain cost, and uncertain solution haven't been addressable. Even more disconcerting is that the paradigm for technology, enhancements and new offerings, has dramatically changed and provides little or no history on how to effectively navigate these new decisions.

In the past the technology vendors and almost all amenity vendors have been isolated, and able to discuss each solution as a "stove pipe" system. Each system was a standalone system from start to finish. The phone system, the property management system, the fire alarm system, even the mini-bar; each essentially operated independently using a dedicated infrastructure with minimal, if any, interaction between them.

The challenge in the next generation Smart Room is that to be cost effective all the component are, as a defacto standard, moving away from their "closed architecture" into the "open systems architecture". *This makes reference*

*to a major shift in computer technology in the 80's from the IBM mainframe environment - as a closed architecture IBM held big business hostage, at that time the answer was IBM and all IBM - which rapidly changed to an entirely new, revolutionary "Open Systems Architecture" of Sun supporting Unix and now Linux. This shift, over the next 10 years almost destroyed IBM as they struggled to embrace the new open solutions that allow for new technologies to be built and sold by independent vendors with a new degree of interoperability. This allowed consumers to buy and integrate the "best of breed" without having to be handcuffed by a single vendor product line and ushered in the most revolutionary advancement in computer technology in history.*

In essence the Smart Room represents a community of consumers faced with the same set of decisions. Where the consumer's history has been to select a vendor and then be locked in with the vendor for all services, support, and future upgrades, or stand the risk of having to re-invest in the core technologies - often a daunting investment. However, the most basic tenant of the Smart Room technologies and the independent vendors, is that this is no longer required. Each vendor is typically poised to operate their system / solution over an internal TCP/IP (Internet) network (called an Intranet or IntraLAN), therefore no longer requiring a separate, dedicated infrastructure in which to operate.

*The next step is the biggest.* If the network provides a new solution for an "Open Architecture" that allows franchises and brands to pick and chose the best vendor, where best may mean best technology or best business deal or best integration into their strategic vision, then what is the next step? Again, why hasn't the Smart Room met the predicted success?

The answer may be that the legacy vendors face the same dilemma that IBM faced in the 80's, and that is by embracing an Open Architecture they lose the control / stronghold on the customer base. Therefore, historically with their core technology they want to deliver a "stovepipe" solution that offers little room for the integration or utilization of an alternative solution. New innovations, features or functionality are delivered as "components" of their system and, as a captive market, the pricing is minimally negotiable. Ultimately, there is little motivation to advocate an Open Architecture as this would introduce unnecessary competition and make the legacy vendor vulnerable to innovations and a fast moving marketplace.

What is an Open Architecture? Just as with phone systems, the infrastructure has been separated from the "service equipment" therefore the property owns the infrastructure - the wiring, the 66 blocks, the phone rooms & phone closets, and the phone jacks in every location. This system is a "standard" and it provides a basic "standardized" set of connectivity to each and every room. Therefore, when assessing the cost of upgrading a phone solution the cost are in the new equipment and the labor to install and configure the equipment with minimal cost associated with modifying the infrastructure. After all, the phone system operates over the standard phone infrastructure and if the previous system worked, then it is reasonable to expect that another "standard" phone system will also work.

Therefore, while the phone system isn't an inexpensive solution, the phone system can be maintained, upgraded, and ultimately replaced without the cost of reengineering the entire infrastructure. As an open system the hotel operator can elect to use different sources for maintenance, make a strategic decision to replace a phone system versus pay exorbitant maintenance cost. All because the underlying infrastructure is independent from the "service equipment".

*Implementing the vision.* This is the purpose of the Smart Room Network product line. The objective is to create a network infrastructure that is a "standard" TCP/IP network. The "network" doesn't represent a simple Cat5 network cable to every location, but a set of wiring/communication infrastructure components. The infrastructure solution, much like the features of the telephone infrastructure, will provide a complete, fully functional, self managed system for providing full a full "command, control and data" network. With the necessary network devices and control points the underlying network infrastructure will create a robust, but vendor independent, network capable of supporting technologies from any vendor - thus creating the Open Architecture and enabling the same revolutionary advancements in Smart Room solutions without handcuffing the customer to a vendors closed technologies or overwhelming replacement costs.

*But does one size fit all?* While there is significant commonality in the hospitality market the reality is that there are a wide range of details. A large part of the hesitancy of a brand or franchise to make the decision to go forward with Smart Room solution is that finding a single vendor with a single technology that could efficiently address the entire inventory of a franchise or brand is a daunting task. One reason is the obvious complexity of coupling the

functionality of the system (i.e. lock controls, light controls, set top box management) with the required infrastructure to communicate with everything everywhere. By breaking the problem down into two distinct parts, the functionality of the Smart Room and, secondarily the infrastructure, then both components become easier to engineer, manufacture and deliver.

The Smart Room Network is a product line focused on the infrastructure only. The objective of the Smart Room Network is to provide a common capability of data, power, and control at all properties. The "product line" has models that can address every hotel configuration, from simple Plain Old Telephones System (POTS) infrastructure to a full "fiber to the room" property. The advantage is that, once implemented then any vendor can easily deploy their solution to operate on the Smart Room Network without consideration for the underlying technology that implements the infrastructure they are guaranteed that the infrastructure can be "commanded" and "controlled", with the obvious considerations for potential "data" restrictions imposed by the underlying media.

The product line offers three sets of components / devices that address how to successfully field a Smart Room Network based on the existing capabilities at any given property. To be successful the Smart Room Network is required to have a solution that will migrate a legacy hotel with a basic phone system into today Smart Room property, while also addressing potential enhanced capabilities at a "newer" technology hotel (i.e. a property with a minimal Cat 5 infrastructure) to support a fully independent Smart Room property; and, finally, how to implement the "next generation" hotel, for example a property with fiber to every room, to provide the fully functional Smart Room.

In each of these examples, the objective of the resultant Smart Room Network is to provide a common network infrastructure that will reliably support the components of a Smart Room and, most importantly provide the three most critical components of the infrastructure - Power, Data, and Control.

Extending the infrastructure, the Smart Room Network offers "optimization" features or accessories. These accessories are only provided to more efficiently extend the infrastructure. For example, the Smart Room Network product line includes a Zigbee module. Zigbee is a command and control solution most often used for managing end devices like thermostats, lights, etc. While Zigbee may be part of a specific vendors solution, for example the lock vendor may provide a Zigbee radio for communicating to the Zigbee radio in the vendor's lock, the Smart Room Network's Zigbee module is capable of communicating with any vendors Zigbee device - thus the Smart Room Network extends to the devices in the Smart Room - but isn't specific to any one vendor solution.

*To summarize*, the goal of the Smart Room Network is to segregate the underlying infrastructure from the vendor solution. In doing so, provide a common platform at the property that empowers the decision maker to select the best of breed vendor without concern for extensive facility costs to implement the solution. By removing the infrastructure requirement from the vendor's solution, it begins to open up the hospitality industry to innovative problem solvers, potentially from other industries, versus limiting it to legacy vendors with embedded solutions.

With a multi-tiered product line and a well engineered solution, the Smart Room Network can be tailored to the entire portfolio of a brand or franchise - supporting a common experience for the guest and increasing the brands loyalty; and, the race to the best "Smart Room" can be won.