EXECUTIVE SUMMARY

Customer Name
Mali Kolektiv

Industry
Real Estate

Location
Belgrade, Serbia

Number of Employees
21 employees serving up to 600 residents, office workers, and shoppers

Business Challenge
· Redefine the office, retail, and home environment
· Support a 100 percent rental model, with a price premium
· Reduce operating costs

Network Solution
· Cisco Connected Real Estate
· Converged IP network platform for IP-based voice, video, data, Internet, and building management services

Business Results
· Capital expenses reduced 20 to 25 percent
· Operating expenses reduced 30 percent, including 40 percent power savings
· Rental rates command a 50 percent premium

Intelligent Building Redefines 'Smart'

Belgrade B2's service-oriented building architecture is reducing cost and carbon while enriching lives

Business Challenge

In seeking to develop Terazijska terrace in the heart of Belgrade, Mali Kolektiv, an investment and real estate company, faced the challenge of rewriting the course of history. The last two centuries have seen eight separate attempts to utilize the space while retaining the green park beloved by Belgrade's citizens.

The site benefits from a strategic location in the city's downtown, 200 meters from the main pedestrian area, and 800 meters from the Parliament building. To succeed where others had failed, Mali Kolektiv, embraced the special place the location has in the hearts of people by putting forward a concept that reflected and further enhanced it.

Dragan Praštalo, Mali Kolektiv's chief operating officer, says, "Our vision was to create a truly prestigious development at the best location that Belgrade has to offer. And we wanted to maximize our revenues by delivering better services to our clients." The key to achieving these ambitions was information and communications technology.

In recent years Belgrade has seen the creation of a number of 'smart buildings,' where technology has been used selectively, for example, to provide enhanced building management, or to give users the ability to remotely control electrical devices.

Mali Kolektiv's vision was to develop a building that would redefine the idea of 'smart' by integrating the best of these advanced technologies. Its objective was to provide a holistic solution to the challenges of delivering a world-class living and working environment for people, with significant cost and energy savings. Known simply as B2, the intelligent building would be both a unique real estate development and a landmark to Belgrade's vigor and desire to play a key role in 21st century Europe.

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Network Solution

The €30 million B2 development comprises nearly 25,000 square meters spread across four underground floors, providing parking for 220 vehicles, a street level, and a further four floors. Above ground there is a shopping mall of approximately 4000 square meters and a further 4500 square meters for 32 residential apartments and just less than 2000 square meters for 15 business apartments.

What sets it apart from other developments, however, is the integration of information, building, and physical security management technologies. To maximize its investment, Mali Kolektiv developed a rental-only business model able to command a price premium. This was achieved by offering tenants luxury accommodation and world-class entertainment and communications services, environmental flexibility, and levels of building and personal security. In doing so, it also reduced operating costs by integrating intelligent building management systems to create a centralized monitoring and control infrastructure. It is a point underlined by the fact that the management of the building is carried out by a team of just ten people, including two receptionists.

"In order to deliver the best possible services we knew we had to integrate various modern technologies. We evaluated proposals from the world's leading information and communications technology companies, but there wasn't another company that could match the vision and technology of the Cisco Connected Real Estate solution," says Dragan Praštalo.

At the heart of the Cisco® approach is a service-oriented building architecture designed to reduce cost and complexity by replacing discrete and disparate in-building system networks with one simplified, flexible, and scalable IP network. This converged network creates the secure and reliable platform for systems integration, enabling information from various systems to be shared. Not only has this made it possible to automate processes, such as heating in anticipation of changes in the weather, it has also enabled the creation of new, IP-based information and communications services.

A modern building typically has about 30 discrete subsystems including lighting, power, video surveillance, telephone, Internet, intercom, heating, and ventilation. In contrast to traditional buildings, where each system requires its own network using propriety protocols, in B2 virtually all systems run over the converged IP network. The exception is fire protection, which by law, has to run over a separate system.

The network can be thought of in four modules. They are:

· LAN: This is the building's nerve system across which the subsystems run and are monitored and managed, day and night, from a central control room. The LAN also supports TV, voice, data, and messaging services throughout the building, in addition to images from IP video surveillance cameras.

· Internet: Secure Internet access is available to all tenants, typically at speeds of 50 to100 Mbps.

· IP telephony: Cisco Unified Communications Manager (CallManager) provides advanced voice and messaging facilities throughout B2.

· Wireless: This provides tenants with complete flexibility within the building about where they access network services. B2 personnel can also communicate wherever they are over Cisco wireless phones.

Business Results

Mali Kolektiv estimates that the converged network has reduced by 20 to 25 percent the capital costs typically required to build discrete networks for the various subsystems and services. It has also led to a 30 percent reduction of operating costs, including spending 40 percent less on power.

Technology has also revolutionized security. Images from 300 IP video cameras are relayed to the central control room. Even the garages are fully monitored, with number plate recognition technology used to restrict access to authorized vehicles. At reception, visitors are given a smart card that enables them to access only those parts of the building that their host has 'authorized.' The building's security system even monitors each apartment's independent security system.

B2 uses an advanced water and air heating and cooling system. Tenants set the in-room temperature,

which is then achieved and maintained through a central computer system, with over 1000 sensors, running sophisticated algorithms that continually respond to changes in the weather. A small roof-top weather station enables changes to be anticipated, for example, by raising exterior shutters to reflect or retain heat. Better energy management enables the building to benefit from the best possible energy tariffs

Residents enjoy other world-leading services. A central touch screen, video-based console, which can, of course, be remotely controlled, enables temperature, lighting, and security levels to be set room by room. Wireless connectivity does not just mean being able to access the Internet from a laptop. People can operate apartment systems via their mobile phones, for example, to turn on the heating prior to return from vacation anywhere in the world.

Tenants also benefit from advanced IP-based telephony (fixed or wireless), high-speed Internet access, and in-room IP TV offering around 60 channels. Such ubiquitous connectivity is much appreciated by tenants as each apartment can be used purely for domestic use or as a live-in workspace/office for executives regularly visiting the city.

The unique range of features and facilities offered by B2 means that Mali Kolektiv has been able to command a 50 percent premium, compared to other prestigious developments in the city. 'This development was both a unique business opportunity and the means to help the regeneration of the city. I cannot imagine how we could have met these objectives, and deliver the services and safeguard the security of residents as we do, without the technology we use," says Dragan Praštalo.

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Technical Implementation

The Cisco Connected Real Estate solution integrates the building control and management systems with Cisco's network infrastructure. This integration enables 24-hour onsite or off-site control of all building systems over a single IP network. The technology is even able to integrate devices such as printers and copiers into the energy-management system, and it can spot unauthorized personal equipment plugged into office electrical outlets.

At B2, the LAN comprises a 4Gbps backbone formed by two Cisco Catalyst® 6500 Series Switches linked by optical fiber running at 2Gbps to 70 Cisco Catalyst 3560 Series Switches with Power over Ethernet. Each 3560 Series Switch (either a 24 or 48 port model as appropriate) is dedicated to an apartment, which is fully wired with Category 8 cabling. Each chassis and connection benefits from full redundancy. Sixty Cisco Aironet® 1242 Series Access Points provide each apartment and the entire building with wireless connectivity.

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Cisco IP Telephony is provided by Cisco Unified Communications Manager (CallManager) 6.1 running on a Cisco MCS 7816 Series Media Convergence Server, with voice messaging through Cisco Unity® Connection. The majority of handsets are Cisco Unified IP Phone 7941G Series, complemented by Cisco Unified IP Phone 7916G Series, Cisco Unified IP Phone 7971G-GE Series, and Cisco Unified Wireless IP Phones 7921G. Cisco Catalyst 2851 Integrated Services Routers provide a voice gateway, acting as redundant points of presence to connect to the public switched telephone network with a two-to-one contention ratio.

The building benefits from a direct connection to the local service provider's network via 48 optical fiber connections terminating on a Cisco Catalyst 3750 Series Metro Ethernet Switch, providing both significant scalability and flexibility. For example, commercial tenants that require complete independence from the main B2 network are able to install their own cable infrastructure and connect directly to this switch.

As well as supporting voice and date services, the links feed 60 IP TV channels to the building, which are then relayed over the LAN that has been designed to support High Definition TV channels. High-speed Internet services are provided over the links, although two Cisco Series 2821 Integrated Services Routers can provide alternative connections .

The entire network is protected by Cisco's end-to-end approach to security. The key components of B2's Self Defending Network are fully resilient Cisco ASA 5520 Series Adaptive Security Appliances with failover and integrated intrusion protection. This flexible solution can adapt as an organization's needs evolve along with the ever-changing security threat landscape, giving businesses the ability to easily integrate market-leading intrusion prevention, antivirus, antispam, antispyware, URL filtering, and other advanced content security services for additional layers of protection. Virtual Routing and Forwarding is used to provide tenants with what is effectively their own VLAN, thereby securing communications isolated from that of other users in the building.

Product List

Routing and Switching
· Cisco Catalyst 6506 Switches
· Cisco Catalyst 3560 Switches
· Cisco Catalyst 296060 Switches
· Cisco Catalyst 3750 Series Metro Ethernet Switch
· Cisco Catalyst 2821 Integrated Services Routers
· Cisco Catalyst 2851 Integrated Services Routers

Security
· ASA 5520 Series Adaptive Security Appliances
· Cisco Secure Access Control Server

Voice and IP Communications
· Cisco Unified CallManager 6.1
· Cisco MCS 7816 Series Media Convergence Server
· Cisco Unity Connection
· Cisco Unified IP 7961G IP Phones
· Cisco Unified IP 7941G IP Phones
· Cisco Unified IP Phone 7971G-GE Phones

Wireless
· Cisco Aironet 1242 Series Access Points
· Cisco Unified Wireless IP Phones 7921G Phones

For More Information

To find out more about Cisco's architectural approach, click here

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