

# Service catalog for condominiums



## About Sanuk Systems

We install broadband for hotels and communities, build fixed and wireless IP networks, and operate global Internet services for office, web, data storage and information sharing in Thailand and Sweden.



### Hotel and Resort

An IP infrastructure keeps you prepared and ahead of competitors by offering guests content as they want it, including always available wireless Internet, IPTV and IP telephony.

### Housing Association

Provide your community with a fast fiber broadband, a wireless network that spans your complete area, international TV channels and telephony, resulting in large cost savings for the households.

### Homeowner

Broadband subscription and additional services for you who live in an area connected to a Sanuk Systems fiber network.

**For more and up-to-date information, please visit us on**  
<https://www.sanuksystems.com>

## In general

Internet of today has a very central role in our everyday lives. We keep in touch with our loved ones, do our banking, buy tickets, watch TV, listen to radio, work, to name a few things where Internet is a matter of course. And when services are becoming increasingly sophisticated, there are also higher demands put on the connection to the Internet in terms of speed and availability. There is much talk about faster broadband, new Internet services and the "digital home". But what does this really mean for a residential area, and what possibilities are there?

The most important task for the board of a housing association is to meet the economic interests and provide a good and safe living environment for the members. Most properties are equipped with an old legacy copper network, with the classic phone jack in each apartment, and sometimes a CATV outlet. Through this infrastructure it is possible to order an Internet connection, but the speed is limited and the price is not necessarily very compelling for what you get. As a housing association, you have an option to upgrade the property with a modern broadband network and exploit the fact that many households together can get a low installation cost and even dramatically decrease the monthly subscription fees.

As an individual member, you will get access to a really fast broadband, as well as the option to get telephony and international TV channels via the broadband, which can result in major cost savings for the household. At the same time this is an opportunity to review the property services, which are becoming increasingly digitalized. Today it is possible to also connect access control, gate intercoms and security cameras to the same network.

### What does the technical solution look like?

An external fiber cable is pulled to a suitable location in the property, where the central equipment (switches) are placed. The switches distribute the broadband capacity via a local area network (LAN), which is normally delivered to each household via a broadband outlet in which a wireless router is connected. The LAN, which may consist of copper or fiber cables, is pulled via existing ducts if available, or otherwise via drilled and listed cable routes through the floor and into the house / apartment.

Sanuk Systems always build active fiber networks (AON), which means that each customer have their own dedicated fiber cable all the way to the closest central point, as opposed to many of the other operators in Thailand who instead use a cheaper technology called Passive Optical Network (PON) where several customers share the same single fiber cable.

### Fiber or copper inside a condominium?

The choice between pulling fiber or copper cable from the basement up to each apartment is not obvious, as both have their pros and cons. A fiber cable can be pulled long distances and have an almost unlimited capacity in speed, but requires slightly more expensive equipment in the households. A modern copper network has a capacity of at least 1000 Mbps to each household, which most users would consider enough, however with a maximum limit of 90 meters between the central point and the household.

### **Individual or common wireless network?**

Another choice you can make, is to either provide each household with their own individual private wireless network, or to have one single common wireless network that is shared by everyone. A common network, which we call a resort network, allows users to stay connected while moving around the area with their portable wifi devices, and can also provide wifi coverage in common areas such as around a pool.

In a condominium where residents just want a cheap internet access, and have no need for their own broadband or TV connection inside their apartments, you can instead choose to place common access points in the corridors ("hotspots") that everyone can use like in hotels and public places. In this case - note that many devices like smartphones and laptops are equipped with small wifi-radios that often are too weak to transmit through condo walls, and thus will not be able to connect to Internet from inside the condos. If you are installing a WiFi network in the corridors, users should be made aware where the hotspots are located.

A common solution is a hybrid, where you install both a common outdoor wireless network for general use, and also let users who in addition want a private network inside their apartment to separately order this as an add-on.

### **Open or closed network?**

An Open network means that the housing association owns the network after the installation. Initially the network is managed by Sanuk Systems, who also are the service provider, but after the initial contract term the housing association can choose to contract another service provider if they so wish. In a closed network the housing association instead rents both the network and services from Sanuk Systems. The minimal term for a closed network is normally 3-5 years.

### **Broadband Services**

Depending on the size and location of your community, you can opt-in for additional services such as TV and Telephony via the same cable as Internet, commonly called 'Triple Play'. We produce our own services tailored for our customer base, with our own telephone exchanges and IPTV distribution systems. The telephones can be provided with a direct dial number in your home country, and the TV-service contains lots of popular international TV-channels.

### **Support Services**

Support, management and maintenance is provided on the core network services, which are monitored 24x7 (24 hours per day during 365 days per calendar year). Technical problems on core infrastructure will normally be detected and rectified quickly by Sanuk Systems engineers.

On request, Sanuk Systems will also provide assistance to individual users in order to ensure the best possible experience and a fully working network with good Internet access in their homes. End user support is available in Thai, English and, primarily via email, Scandinavian languages, business days 9 -17 and limited support via email in evenings and weekends. Sanuk Systems will provide users with a simple custom installation- and troubleshooting guide that describes how to resolve the most common problems. Please see

<https://www.sanuksystems.com/support/>.

## **Network connection**

The building is connected to a Sanuk Systems point of presence using a fiber optic cable. A rack is installed to hold the main switches, power supply and other central equipment. The central equipment is monitored day and night by a management system that automatically alerts Sanuk Systems support staff in case of problems.

## **Internet**

Internet access is provided via the network connection with an internet speed of 100/100 Mbps. As our customers are primarily consumers using services outside of Thailand, a larger access link bandwidth is typically not useful due to the physical limitations on long distance throughput. To ensure best possible international response times on international access during peak times, all Sanuk Internet connections have premium service class priority above average users in the main international gateways in to Thailand ("ISP Corporate quality").

## **Condos**

Each condo is connected to the central network connection via either fiber cables or CAT6 ethernet, depending on the building layout. The speed within the building is 1 Gbps (1000 Mbps).

## **TV system**

TV channels and other content is provided through the Sanuk Systems TV box, which is connected to the TV in each condo. From the box you can choose between around 50 TV channels and 100 radio channels in different languages. In addition, the condo can connect premium channels or common files storage to be shared inside the condo.

Users can also connect a private hard drive or USB stick to their TV-box to play own media on their TV.

The standard TV-box is very easy to use. Advanced users can optionally choose a box running Android-TV, which is a bit more complicated to use, but allows them to install more applications such as Youtube and TV Play-channels, as well as stream their own devices to the TV via a built-in Chromecast.

## **IP telephone**

A hotel style telephone exchange is included in the system to which condo owners can connect a telephone.

The telephone can be used to make free local calls to other houses, office, guard and other services provided by your area, as well as make cheap external telephone calls. Incoming calls are received via an external automatic exchange, and condos can also get a local number from their home country so that friends and family can call them from abroad without having to pay expensive international rates.

## Equipment description

### Area

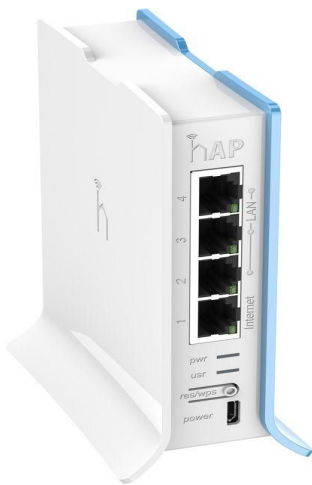
#### Central equipment

We use mainly managed switches from Cisco and MikroTik who both produce top of the line equipment.



## WiFi router

WiFi routers for installation in condos are supplied by Mikrotik and Totolink. We offer a selection of different routers with single band 2.4GHz or dual band 2.4+5GHz based on building layouts and unique requirements.





## TV box and extra HDMI ports

The TV box is connecting to a central Sanuk Systems portal service, where TV-channels and other content is presented.



If the condo has their own additional content such as a common satellite channel subscription or a local info channel, the 3rd party video equipment and set top boxes can be connected via HDMI to the local network and thus become accessible from all condos.





## Broadband telephone

Via Sanuk System's telephone network you make and receive cheap phone calls to the rest of the world. You can choose to place a telephone in every home within your community, or to make it optional for the homeowners. The telephone can be used for internal and optionally external calls with cheap rates to the whole world. It is also possible to call to your telephones via toll-free numbers in many countries. Homeowners can choose to install a portable cordless telephone, or for homes being rented out it may be preferred to install a fixed telephone.

The stationary phone comes from Planet and the wireless from Panasonic



## Additional services

### Public / Business WiFi network

In networks spanning over a larger area requiring multiple access points, we use business-grade advanced radio units that are connected to a central system controller which automatically ensures that each radio is operating with correct settings, and that the available radio frequencies are optimally utilized with minimum overlap. It also monitors other radio traffic in the vicinity to avoid selecting busy channels.

With so called Zero-Handoff Roaming, the system controller automatically transfers control from one access point to the next when a client is moving, allowing the user to seamlessly stay online without disruption even when using voice- and video applications.



## Outdoor antennas

Outdoors, powerful radios with high performance sector antennas are mounted on the outer walls and aimed at public areas such as pool deck, outdoor bars and terraces.

Large 120 degrees antennas are used to cover larger open spaces, whilst smaller 60 or 90 degrees sectors are used for specific spots with minimum frequency overlap.

A mix of 2.4GHz radios, the still most used and crowded band, and 5GHz radios, the new faster and less crowded band but also with less reach, are used in the access points for optimal performance and coverage.



### CCTV camera

Digital IP cameras from HikVision gives razor sharp pictures. A variety of models are available depending on placement and usage



### **CCTV recorder**

The compact NVR from HikVision connects up to 8 cameras. A choice of hard drive sizes are available depending on the amount of cameras and size of history recordings. Recorders for larger systems are available.



### **VPN tunnel**

Sanuk Systems can provide a private VPN tunnel for your CCTV-system, allowing you to log in and monitor the camera system from anywhere in the world where there is an internet connection.