

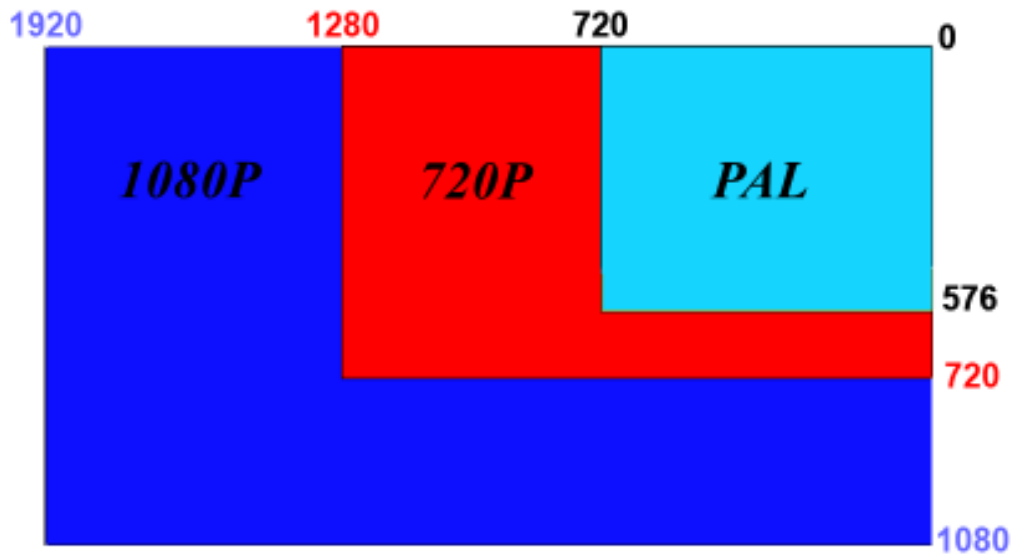
## Digital TV Solutions

## DIGITAL TV TERMS & STANDARDS

- DVBS → QPSK → SD → MPEG2
- DVBS2 → 8PSK → SD/HD → MPEG2/MPEG4/H264
- DVBT/T2 → COFDM (DTT) → SD/HD → MPEG2/MPEG4/H264
- DVBC/C2 → QAM → SD/HD → MPEG2/MPEG4/H264
- IP → TCP/IP → SD/HD → MPEG2/MPEG4/H264

# TV RESOLUTIONS

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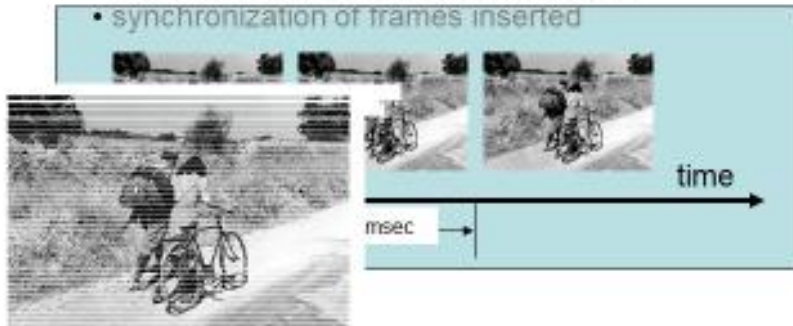
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## Analogue TV

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Picture:

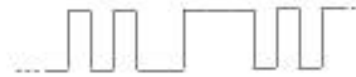
- sequence of frames
- each frame divided in two rows
- rows are placed in sequence
- light intensity is transformed in voltage
- synchronization of frames inserted



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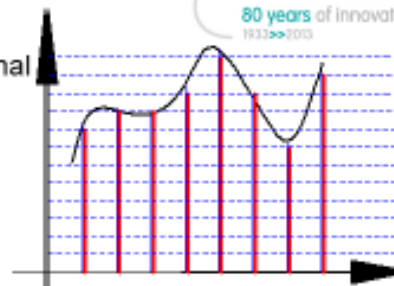
# DIGITAL Signal



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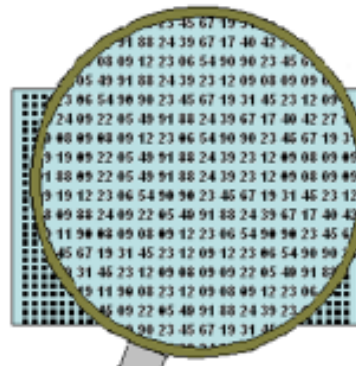
# Signal Digitalisation

- 1 – Applied Sampling Process On Analogue Signal
- 2 – Quantified the Samples
- 3 – Express the Entire Value as Numbers
- 4 – Convert Numbers To Binary Code
- 5 – One Frame (Pixel Matrix) Becomes a Matrix of Number



8 9 9 10 12 10 7 11

1000,1001,1001,1010,1100,1010,0111,1011



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# DIGITAL TV

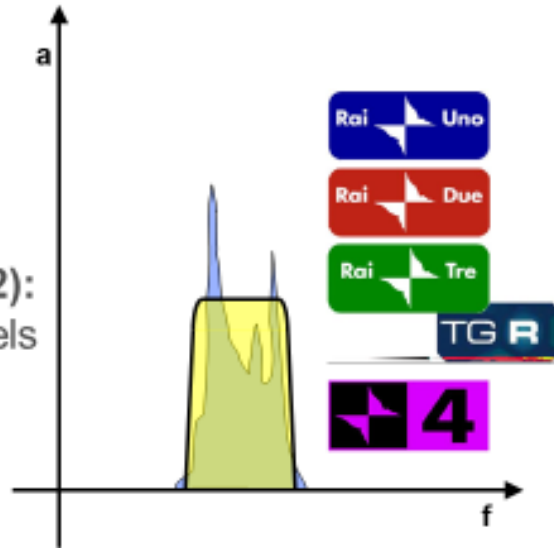


## In Analogue:

- one program per channel

## In Digital (DVBT/C and MPEG-2):

- at least 5-6 good quality channels (with 5Mbit/s flow a program)

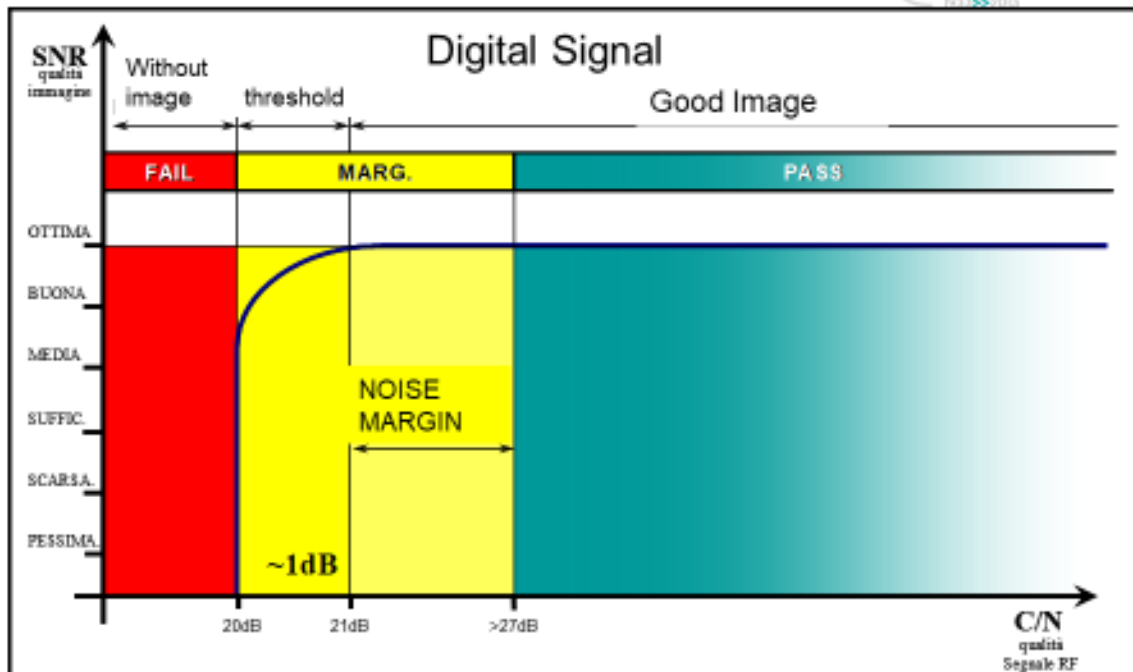


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# “Deterioration” on Digital TV



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## Digital TV Conclusion :



- Give us more programs than analogue modulated signals
- Guaranty sharp pictures, without noisy "snow effects" or double pictures
- Manage real formats 4:3 and 16:9
- Reduce electromagnetic pollution 5-10 times
- Give us (in well done installation) quality on signal even in the future and not only quality of the picture and sound
- Allow HD quality distribution
- Prepare our installation even for future technologies (3D, 4K,....)



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## Digital Revolution:



*From Analogue to DIGITAL Modulation On Terrestrial Transmission Even In Malaysia*



MyTV (myFreeview)



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Driver is ... a Big change on TV set !!!



- From analogue to DIGITAL input (DVBT2 Tuner)



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## Digital TV

DVBT (COFDM) & DVBC (QAM)



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# DTT STANDARDS



ATSC ■

ISDB-T ■

DTMB ■

DVB-T ■

DVB-T2 ■



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# DIGITAL TV : COFDM / QAM



**Analog PAL** : One program per 8MHz channel

**Digital DVB-T** : Max bit rate in 8MHz channel is 31.6Mbps

**Digital DVB-C** : Max bit rate in 8MHz channel is 51.3Mbps

SD Program (MPEG2) :

DVBT : 6 SD Channels @ 5Mbps Each

DVBC : 10 SD Channels @ 5Mbps Each

HD Program (MPEG4-H264) :

DVBT : 3 HD Channels @ 10Mbps Each

DVBC : 5 HD Channels @ 10Mbps Each



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## COFDM / QAM (Headend)



- MODHDTV-Micro
- 3DGFlex
  - SIG7404H 4AV-ASI Encoder
  - SIG7804H264 4HDMI-ASI Encoder
  - 3DG-2ASI-2T ASI-DVBT/C Encoder
  - 3DG-4S2-2T SAT-DVBT/C Encoder
  - 3DG-4T2-2T DVBT-DVBT/C Encoder



- ASCENT EM1401HDMI Encoder Modulator
- ASCENT EM2408HDMI Encoder Modulator
- WellAV CMP200 HDMI Encoder Modulator



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## COFDM-QAM (Distribution)



- AMP9762 RF Distribution Amplifier
- RF Splitters (2-ways, 3-ways, 4-ways)
- RF Tap (2-ways, 3-ways, 4-ways)
- RG6 & RG11 Coaxial Cable
- COFDM (DTT) Decoder



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## HDMI Modulator

- ▶ Single HDMI or single A/V input
- ▶ Frequency output, LCN no. Country and level selectable through front keys and display 7 segments;
- ▶ Reduced installation set-up (easy installation for low level installer);
- ▶ High level set-up through PC for advanced installer.
- ▶ Output MIX to add all other channels coming from different directions.



## HDMI Encoder Modulator

- **ASCENT EM2408HDMI Encoder Modulator**
- **WellAV CMP200 HDMI Encoder Modulator**

Compress & Convert 8 - 24 HDMI Signals (Satellite Receiver, DVD Player or PC) Directly To COFDM / DVBT Channels

- ▶ 1-13 Mbps Bit Rate / Channel
- ▶ 2-8 DVBT Mux Channels output
- ▶ H264 Compression & Video Encoding





COFDM-QAM

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# 3DGFLEX

Digital evolution



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## 3DGFLEX: DIGITAL EVOLUTION

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### What's new in 3DGFLEX:

- 4. **WEB INTERFACE** to setup and monitor the headend at any time without the need to install any proprietary software.
- 5. **INTEGRATED HOST CONTROLLER** to manage and monitor the status of all parameters within the headend.
- 6. **New MODULES WITH CONNECTION ON THE FRONT**, easy installation and removal.



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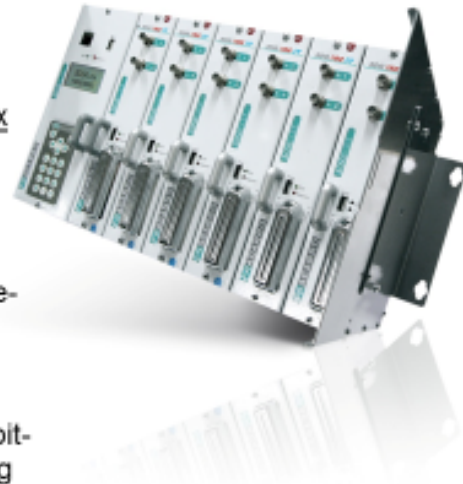
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## 3DGFLEX: DIGITAL EVOLUTION



### What's new in 3DGFLEX:

7. **"TWIN Philosophy"**: each module has 2 independent inputs, 2 slots with a Common Interface that can generate 2 independent DTT MUX outputs.
8. **"MUX AD HOC"**: you can create a DTT mux with the chosen programs from 3 separate satellite transponders.
9. **AUTO REMAPPING FUNCTION**: Simply change the channel list without needing to re-tune all the TV sets.
10. **ARP2.0**: Guaranteeing the continuity of service (CoS) of the system in the event of bit-rate overflow, avoiding pixilation and freezing effects of programs within a specific mux.



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## SMART CABINET



The **cabinet** is not only a physical housing but it's also fundamental to:



- Managing the voltage and current that is distributed across each of the modules.
- Managing the communication between the modules and the control unit, simplifying the set-up and monitoring of the headend.
- Managing the RF input signals (loop-through); the back panel becomes an additional input source.
- Combine and amplify all the generated RF multiplex's (102dB $\mu$ V per channel, adj. 15dB).



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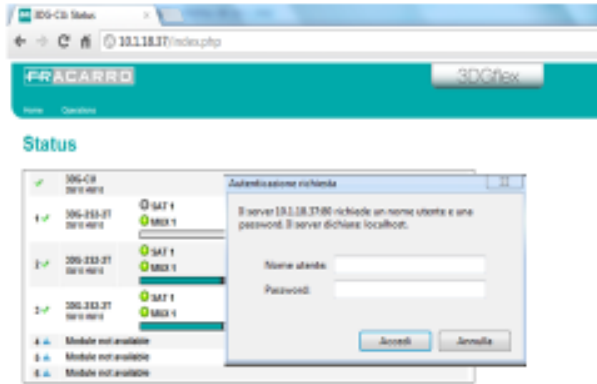
# WEB INTERFACE



Setting up the headend is made easy thanks to the new **WEB INTERFACE**.



By simply using a standard web browser (i.e. Explorer, Firefox, Chrome, ...) it is possible to set up all the parameters by connecting the headend to a PC (DHCP option is available).



Access is enabled by using the assigned username and password.



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# COFDM-QAM : 3DGFlex



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## Fully Flexible Inputs

-  • COFDM Terrestrial
-  • QAM Terrestrial
-  • QPSK Satellite
-  • A/V Analogue (4AV – ASI)
-  • HDMI/SDI Digital (4 HDMI – ASI)



## Fully Flexible Outputs

-  • COFDM Distribution
-  • QAM Distribution
-  • IP CAT6 Distribution



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# Hospitality Head-end



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## 3DG-Flex: SAT / DTT Module

Each module has 4 independent DVB-T2/T or DVB-S2/S inputs.

Able to supply power to the mast TV preamplifier.

Able to manage DISEqC 1.0 commands and provide the remote power to the LNB.

**USB port** for quick and easy firmware upgrades and to upload/download system configuration settings.



**Dual Common Interface slot** (one for each input) to unscramble programs from selective subscription based satellite transponders.



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# Hospitality Head-end



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## 3DG-Flex: ASI Module



Each module has 2 independent ASI inputs in which is possible to connect external devices (I.e. SIG7404H) able to encode different analogue sources and remodulate them in digital output programs.



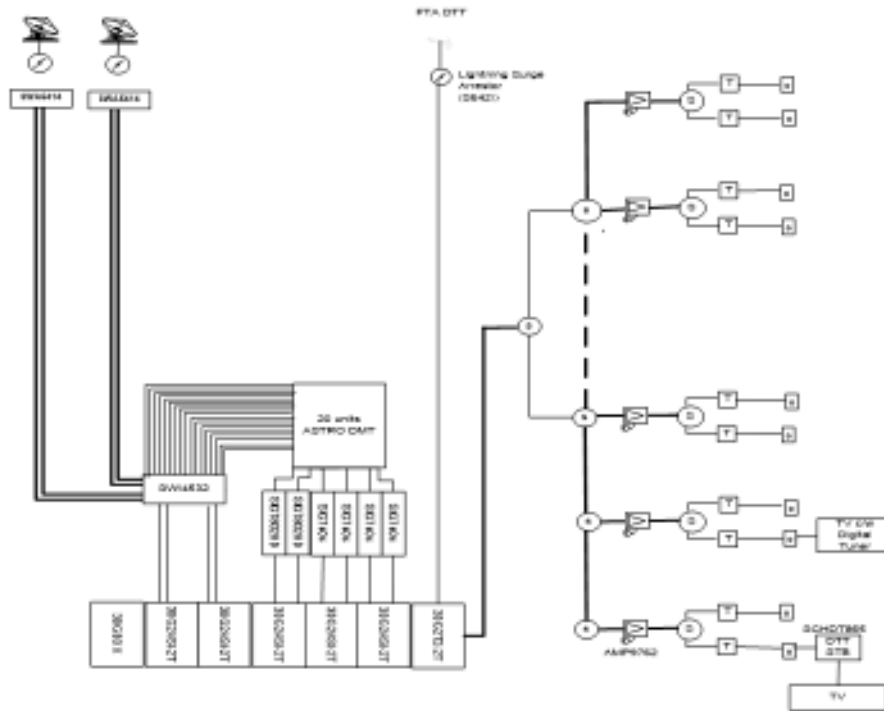
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# SCHEMATIC DIAGRAM (Hotel)

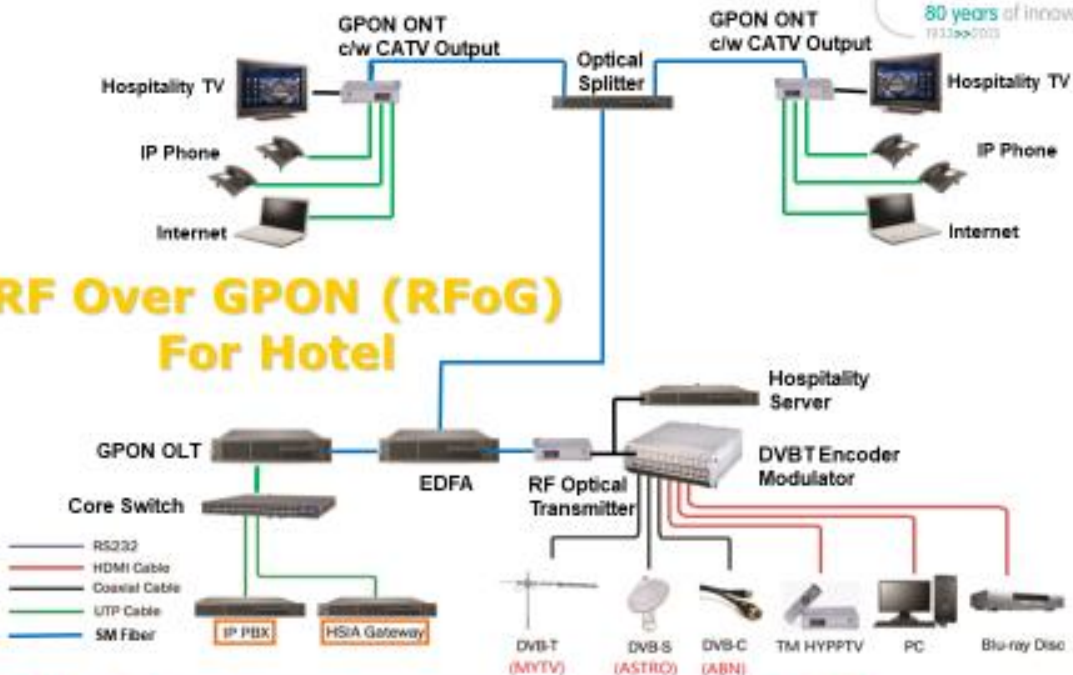
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**3DGFlex**



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## RF Over GPON (RFoG) For Hotel



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## Digital TV IPTV

## IPTV (Hardware)

- Servers & Data Storage
- Switch & Router
- Set-Top Box (Decoder)
- 3DGFlex IP Encoder
  - EM2408HDMI 8HDMI-DVBT Modulator
  - SIG7404H 4AV-ASI Encoder
  - 3DG-4S2-BP SAT-TS Encoder
  - 3DG-4T2-BP DVBT-TS Encoder
  - 3DG-BP-IP TS-IP Encoder
- WellIAV CMP200 HDMI/DVBT2 Encoder





# IPTV Main Features



- Welcome Screen
- Live TV
- Video on Demand
- Guest Information
- Room Service
- e-Shopping
- Flight Info
- World Radio & News
- Games & Apps
- Internet Surfing
- Messaging
- Wake Up Call / Alarm
- Fire Alarm & Emergency Evacuation
- Advertisement Support
- Digital Signage

# IPTV (Middleware)



## PMS Integration

The system is able to integrate with several property management systems (PMS) that can be part of the IT infrastructure of the customer. This way the hospitality system is able to generate per-user contents with the information acquired from the PMS. This service is used for automatic posting the costs of the film rent or whatever pay service that the hotel must decide to implement on the billing of the customer.

- Current integration includes:
  - Guest check-in, check-out and related data modifications
  - Customized guest welcome message
  - Billing view from the comfort of the room.
  - eShopping
  - Room service and wake-up
  - Live TV, including premium channels and adult content
  - Video on Demand posting services

## Welcome Screen



- Welcomes the guest when he arrives to his room for the first time, by their name and language
- Check-In & Check-Out Date



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## Live TV



- You hotel can group the channels by country of origin
- OSD zapping while watching TV
- Personalized TV list
- Multiple audios support
- DVB subtitles support



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## Video On Demand



- Guests can rent movies from the catalogue
- Main screen showing current offers
- Browse through content categories, sub-categories, individual titles & the synopsis
- Multiple languages / currencies / audios / subtitles
- Parental control support for adult content



## Guest Services



- Displaying local information about the hotel, the city & its surroundings
- Tourist attraction
- Shopping malls
- F&B promotion
- Telephone directory
- Pre-defined library of styles & layouts



## Room Services & E-Shopping



- Food ordering direct to the kitchen printer
- Laundry request
- Housekeeping
- E-Shopping thru' hotel outlets or participating outlets from nearby shopping malls



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## Advertisement Support



### Push advertisement

- Automatic pop ups on certain user interactions
- Pop ups forced by the provider from the management console

### Sponsorship

- Banners on different sections and areas of the screen
- Static and dynamic text and graphical banner options based on different banner server parameters.
- To be defined based on customer needs



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# Digital Signage



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**Reception Desk:** call 1020  
**Restaurant:** 07:00am - 21:00pm  
**Bar:** 10:00am - 00:00pm  
**Room Service:** call 222  
**Gym:** 10:00am - 21:00pm

**Pool:** 08:00am - 18:00 pm  
**Nursery:** 12:00am - 00:00pm  
**House Keeping:** 07:00am - 21:00pm  
**Laundry:** call 0908  
**Emergency:** call 1010

## Hill Road Hotel

### SHOPPING CENTERS

**Al MULLA Plaza**  
 Located on Dubai Sheikh Rd, opp. Dubai Police HQ  
 10am - 10pm Daily (on Fri) 5 pm  
 Contact: mall@algerma.com.net.ae  
 Tel: 2060309 - Fax: 2060430

**BurJuman Centre**  
 Located on Bur Dubai, Trade Center Road  
 Daily 10am - 10pm  
 Contact: www.burjuman.com  
 Tel: 2060309 - Fax: 2060430

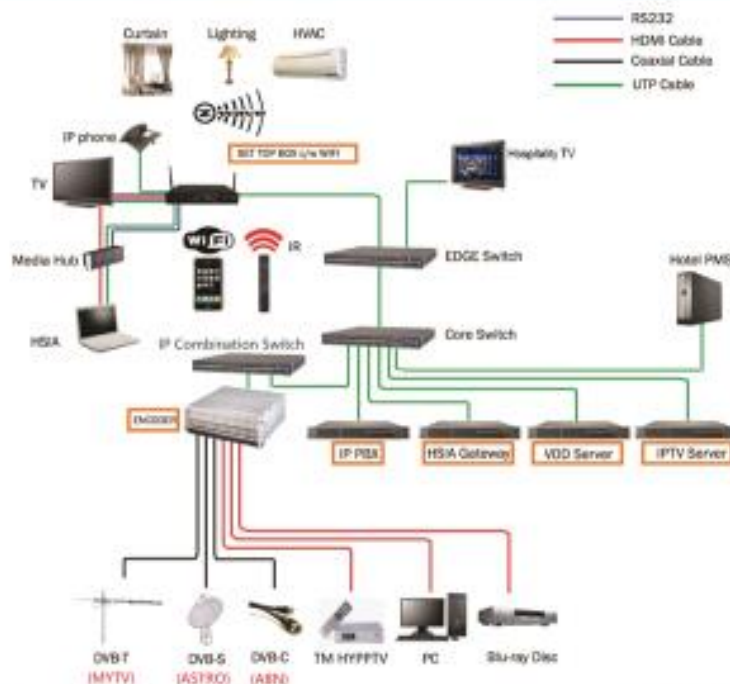
**Wafi Shopping Mall**  
 Al Reef Road, next to Grand Hyatt Hotel  
 Daily 10am - 10pm  
 Contact: www.wafimall.com  
 Tel: 2060309 - Fax: 2060430

**Mercato Shopping Center**  
 In Jumeirah, close to Dubai Zoo  
 Daily 10am - 10pm  
 Contact: mall@algerma.com.net.ae  
 Tel: 2060309 - Fax: 2060430  
 www.mercatoshoppingmall.com

# Typical IPTV Architecture



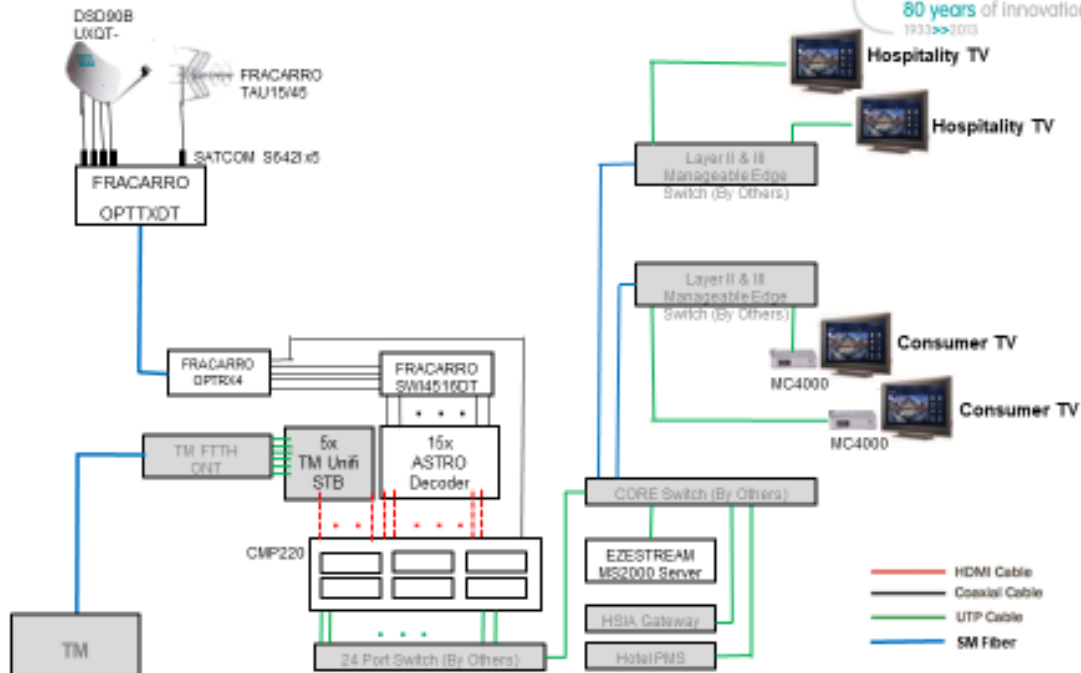
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# Typical IPTV Architecture



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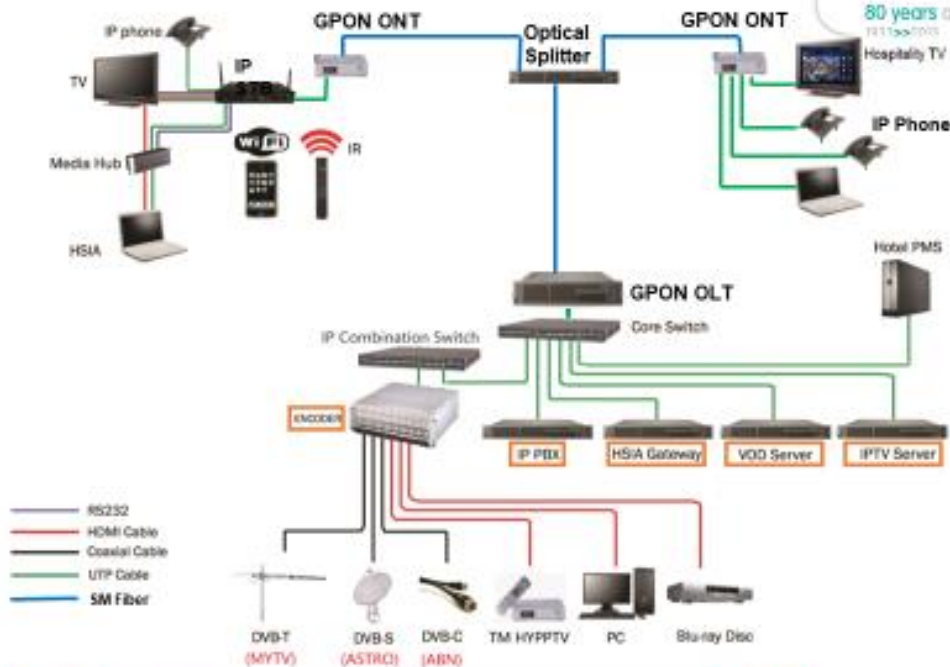
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# Typical GPON IPTV Architecture



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