

The **MENOS** Project

IP contribution at work Now and in the future

Abdelrahim Suleiman
ASBU Technical Director

Jean-Pierre De Muyt
VP Sales Newtec



Agenda

- The drivers
- What **MENOS** it is now
- The network opening up
- The technology
- Future roadmap



MENOS : The next generation network

This presentation outlines the implementation of the new ASBU Network based on the latest advanced technologies. MENOS Network (Multimedia Exchange Network Over Satellite), as first of its kind, enables new business models and create tremendous opportunities for the ASBU members and all potential users in the value chain of satellite networks.

Broadcasters challenges



- Multi-channel, multi-platform universe — requires massive investment to keep pace
- Cost of current generation Audio- and TV Earth Station
- Cost of keeping up with technology changes (DVB-S2, MPEG-4) and
- New service demands (VoIP, Store & Forward, Archiving, File Exchange, E-mail, Internet Access, ...)

- Complexity of managing multiple networks & technologies
- Cost-efficient exchange of data, voice, audio and video
- Supporting a broad range of TX bit rates
- Careful manual planning & coordination of transmissions in pre-defined satellite slots
- Control & Manage multitude of services (Video, Audio, Data, Tel., Intranet, ...)

MENOS Key Advantages

- **Easy to use terminals**
 - Always on
 - Automated
- **Lower terminal cost**
 - Small, low power
 - IP based
- **Higher flexibility**
 - Multiplexing of all services over IP
- **Lower operational cost**
 - Better use of space capacity
 - Dynamic use of available bandwidth
 - Differentiation between critical and non-critical services
 - Automated services
- **Additional IP services to broadcasters**
 - VoIP, E-mail, VPN, Broadband Internet access
- **High quality of service**
 - High reliability
 - Value added services



MENOS Value Added Services

- High quality Audio and Video Contribution
- Fast News Gathering
- Store and Forward file transfer
- Flexible, automated session reservation with billing system
- Archiving of audio and video content
- Highly secure VPN services, with full data encryption
- SIP based VoIP coordination channels
- Always-on Intranet & Internet access
- Distance training & distance learning
- Remote connectivity for Maintenance



MENOS today's user community



Arab States Broadcast Union



ASBU helping the Arabic community

- ASBU and ARABSAT are working together to successfully roll-out MENOS in the Arab Region
- ASBU provides
 - Network planning
 - Network operation
 - Maintenance and support
 - Equipment
- ASBU plays the role of access network provider, assuming the necessary network management responsibilities



ASBU helping the Arabic community

- ARABSAT provides satellite capacity on Arabsat 4B (Ku) and Arabsat 2B (C)
- ARABSAT and ASBU market together the MENOS services to potential users
- All ASBU members currently connected to the network
- Several Virtual Networks have been signed with SRTC, MOCI and Iraq

ASBU helping the Arabic community

- MENOS Virtual Networks (VNs)
 - The MENOS VNs will allow individual Members & other potential users to operate their own networks
 - Low cost & efficient way for those users to extend their national networks and/or areas not covered yet
 - MENOS designed to support 250 VNs
 - MENOS 1st phase 1000 Terminals (SITs) expandable to 5000 SITs
- VNs or Sub-Networks could include
 - TV and Radio Organizations
 - International, Regional & non-Governmental Organizations
 - News Agencies
 - Universities
 - Ministries

ASBU member VNs

- Sudan Radio & TV (SRTC):
 - Three Phases Mixed C + Ku Bands SITs (IP + Radio + TV + DSNG)
 - 48 SITS contracted & will be deployed Jan 2010
 - 90 SITs for Sudan News Agency (2Q 2010)
 - 130 SITs for SRTC (2Q 2010)
- Saudi Arabia (MOCI)
 - 85 SITs (Radio + TV + DSNG)
- Iraq Media Network (IMN)
 - 30 SITs (Radio + TV + DSNG)
- Lybia, Egypt, Algiers & others :
 - In preparation

ASBU connecting the Arabic community to the rest of the work

- Linking MENOS and Genesis Fiber optics Network
- This will allow MENOS Network users access to about 200 Locations all around the world
- Provide Genesis users with access to the Arab region & Africa
- First phase : Connecting both networks through a MENOS SIT-TV installed in Lyon-France
- Second phase : Connecting both networks through a fiber link between Europe and MENOS hub in Algeria

MENOS LONDON OLYMPICS 2012

HDTV Coverage

- In London ASBU will have contribution uplink consisting of 8 Encoder + 8 modulators transmitted over 1 or 2 transponders to be rented during the Olympics
- Algiers will be equipped with extra 8 SatIP demod and connected to an antenna that is looking to London Satellite (probably the existing Ku can be reused for that).
- This is connected to the MENOS distribution system.
- Users have 3.7meter Receive only stations with redundant receive chains each with 4 HD Decoders

More insight in the technology

Contribution
of



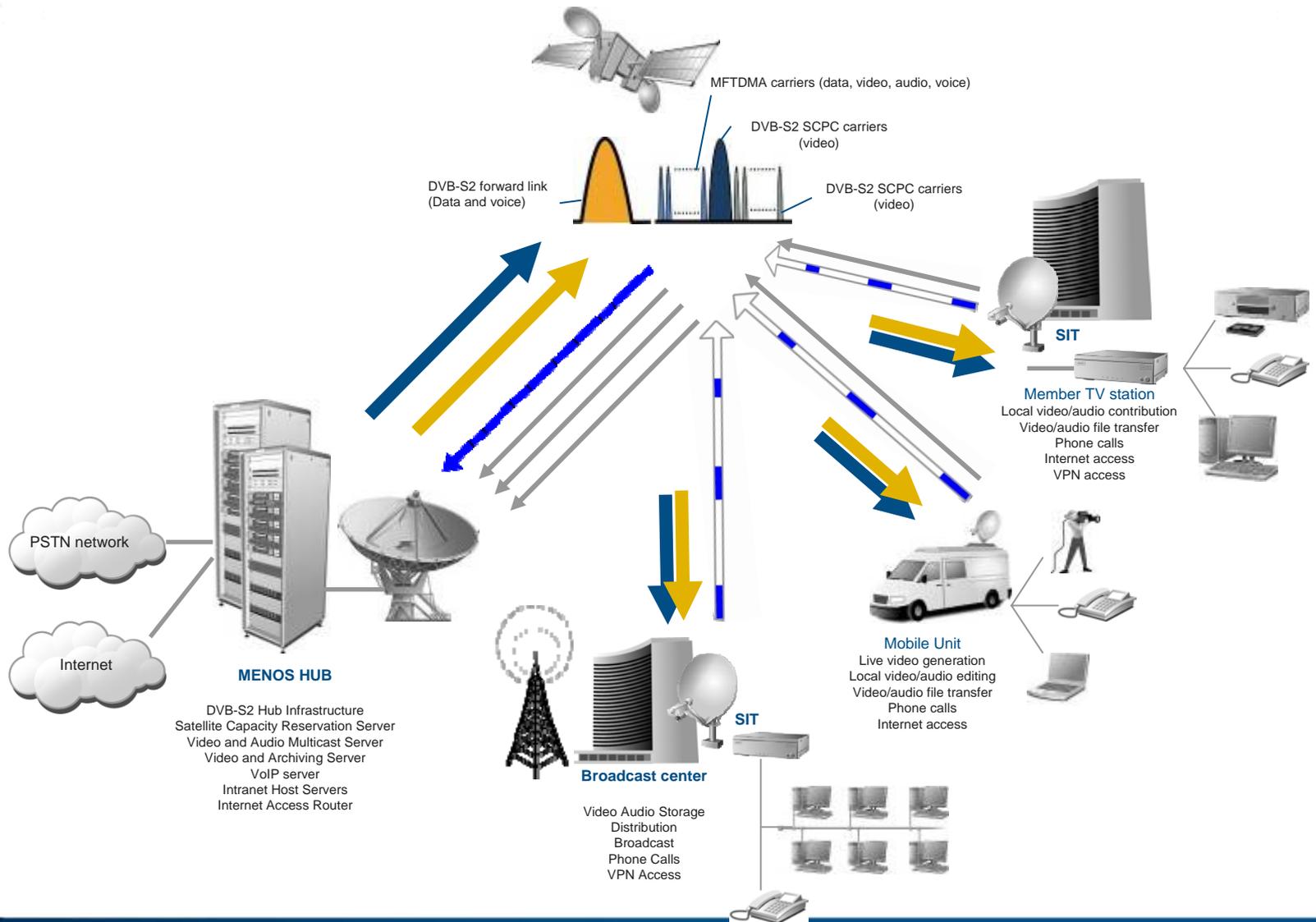
SHAPING THE FUTURE OF SATELLITE COMMUNICATIONS

MENOS Services

- TV and Radio **Live Exchange** with different qualities
- **Store and Forward** file transfer exchange
- Flexible and **automated session reservation** integrated with the billing system
- Highly secure **VPN services** with full data encryption
- SIP based **VoIP** coordination channels
- Always-on **Intranet & Internet** access
- **Virtual Networks** management
- **Archiving** content services
- Fast News Gathering (future)
- Distance training & distance learning (future)
- Collaboration tools (future)



Global MENOS overview



Terminal overview

- SIT-IP
 - 2 x VoIP channels
 - Router
 - IP Broadband Modem
- SIT-radio
 - SIT-IP
 - Analog / Digital audio I/O
 - Radio Multimedia Exchange Services
- SIT-TV (demo to be seen here)
 - SIT-IP
 - Integrated Video encoder/decoder
 - Video Multimedia Exchange Services
- SIT-DSNG / FlyAway



The best terminal for each application

Terminal type	SIT-IP	SIT-Radio	SIT-TV
Antenna's			
Ku-band	1,2 m	1,2 m	1,2 m 1,8 m
C-band	1,8 m	1,8 m	1,8 m 2,4 m
Features			
IP connectivity	✓	✓	✓
VPN	✓	✓	✓
VoIP	✓	✓	✓
Distance learning	✓		
Collaboration	✓		
Live Radio		✓	
Live PRO radio		✓	
Live TV			✓
Transportable			
Store & Forward		✓	✓
On demand content		✓	✓
Multimedia VPN		✓	✓

The best terminal for each application

Terminal type	SIT-IP	SIT-Radio	SIT-TV	TV-DSNG
Antenna's				
Ku-band	1,2 m	1,2 m	1,2 m 1,8 m	1,2 m
C-band	1,8 m	1,8 m	1,8 m 2,4 m	1,8 m
Features				
IP connectivity	✓	✓	✓	✓
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VoIP	✓	✓	✓	✓
Distance learning	✓			
Collaboration	✓			
Live Radio		✓		
Live PRO radio		✓		
Live TV			✓	✓
Transportable				✓
Store & Forward		✓	✓	✓
On demand content		✓	✓	✓
Multimedia VPN		✓	✓	✓

MENOS SIT* overview 2



Currently 3 certified DSNG providers

- SIT-DSNG (MN425, MN525, MN625)
 - IDU Kit for integration in DSNG vehicle
 - TV/Radio/IP variants
 - Ku/C-band variants
- SIT FlyAway (roadmap)

NDSatcom

OmniGlobe

Sematron



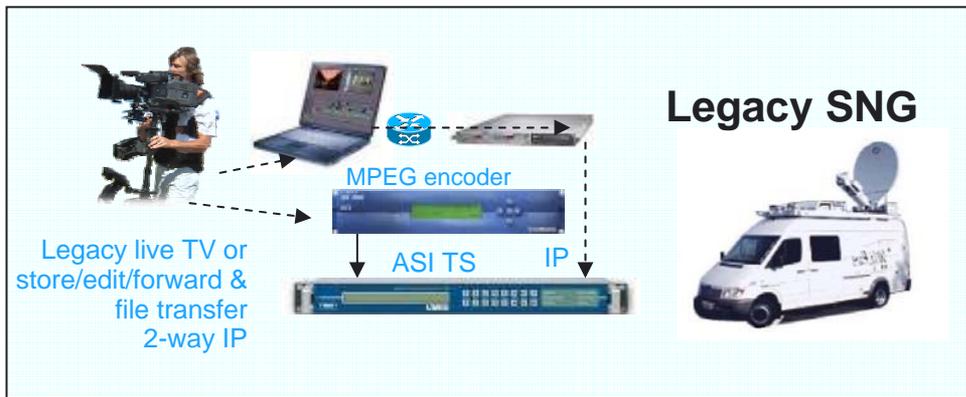
MENOS OpenDSNG: Product Portfolio <small>(as of July 2009)</small>				
OpenDSNG Integrator	Flyaway	Small Driveaway	Medium SNG Light	Large Full SNG
	Flyaway 	SkyRAY Light 	SNG SkyRAY L 	Full SNG
	tba	Bucky 	Cygnus 	Hercules
	Flyaway + Suitcase 	Compact SNG 	Full DSNG Van 	

*SIT = Satellite Interactive Terminal

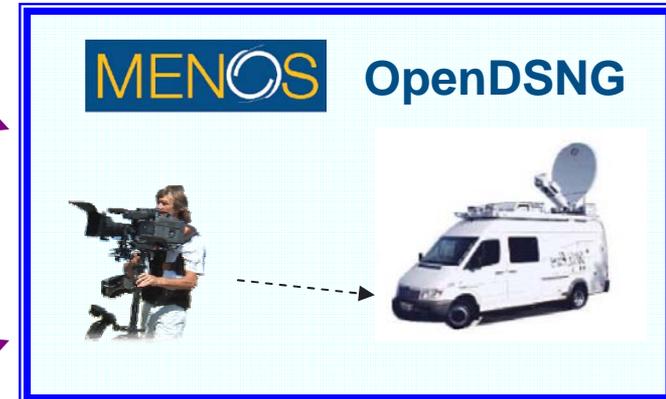
Future roadmap elements

- Open DSNG
- SIT-DSNG / FlyAway
- Interconnects
- HD Support

Solution to the DSNG Problems: OpenDSNG



$$1 + 1 = 1$$



MENOS Flyaway Light Terminal

Menos Flyaway light is a portable terminal supporting **Fast News Gathering (FNG)**:

- Contribute low bit rate **video** (MPEG-4 AVC / H.264 SD)
- Use the **intranet**
- Make **VoIP** calls
- Exchange **files**



- Cost-effective vs BGAN
- Low OPEX gives good TCO

MENOS HDTV Phase 1 Drivers

- Recommendations of Arab HDTV Group
 - Baseline of 720p
 - MPEG-4 AVC / H.264
- WBU-ISOG H.264 HD Codec Interop Tests
 - Contribution @ 4:2:2 for MENOS HD
 - Support both baseline 720p, additional 1080i capability
- Additional regional customer needs
- Support for HD workflows:
 - Live HDTV (news, sports, ...)
 - File based HDTV: store & forward

MENOS HD Live FORMATS

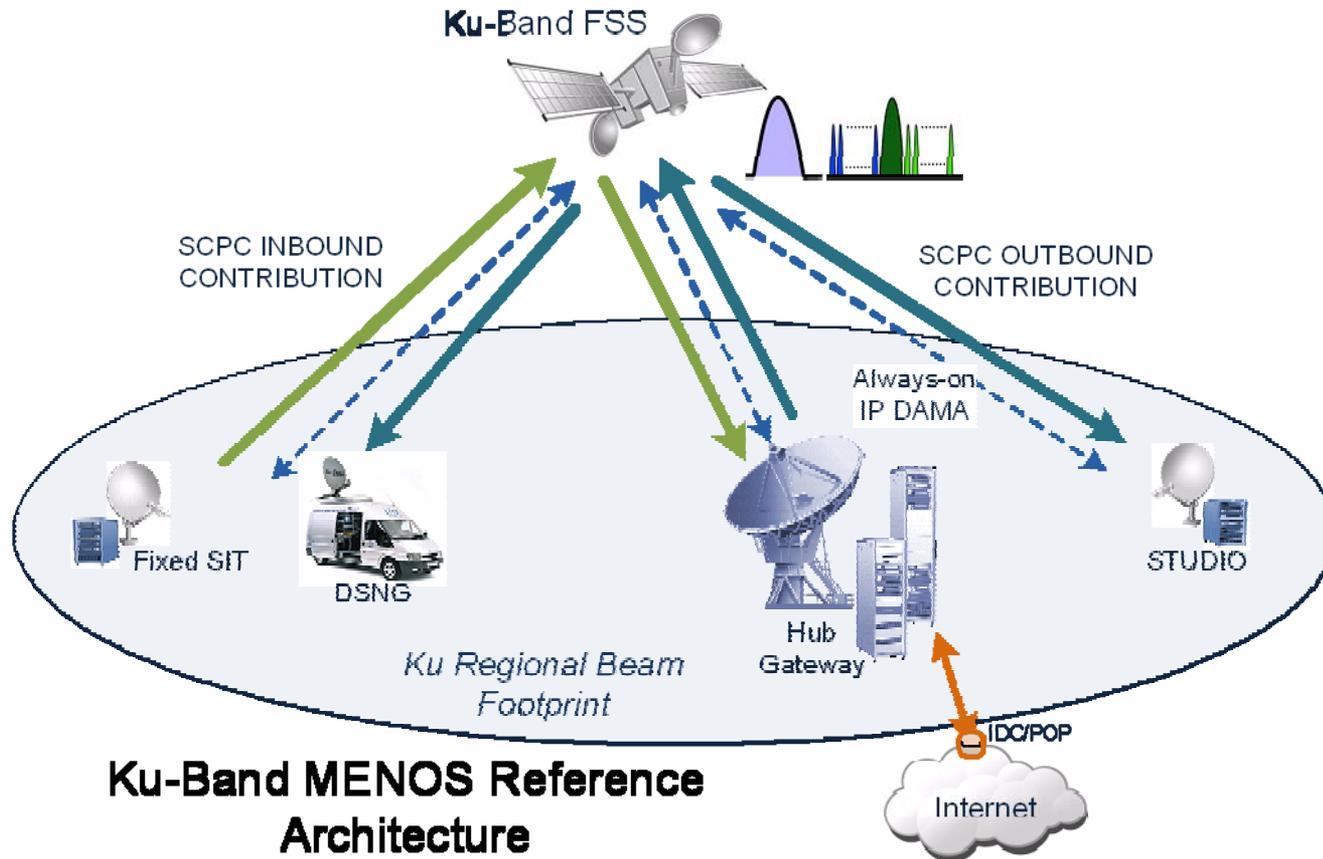
- VIDEO: MPEG4 AVC/H.264

PROFILE		Rate			
1	720p	10Mbps	HiP@L4 (4:2:0)	Short (Eg News)	Low delay
2	720p	15Mbps	Hi422P@L4	Long (Eg football)	Normal delay
3	720p	20Mbps	Hi422P@L4	Top events	Normal delay
4	1080i	10Mbps	HiP@L4 (4:2:0)	Short (Eg News)	Low delay
5	1080i	15Mbps	Hi422P@L4	Long (Eg football)	Normal delay
6	1080i	20Mbps	Hi422P@L4	Top events	Normal delay

Baseline
Recommended
supported

- AUDIO:
 - 4 channel MPEG-2 (MPEG1 Layer2)
- CONNECTORS:
 - HD-SDI coax -> SMPTE292M

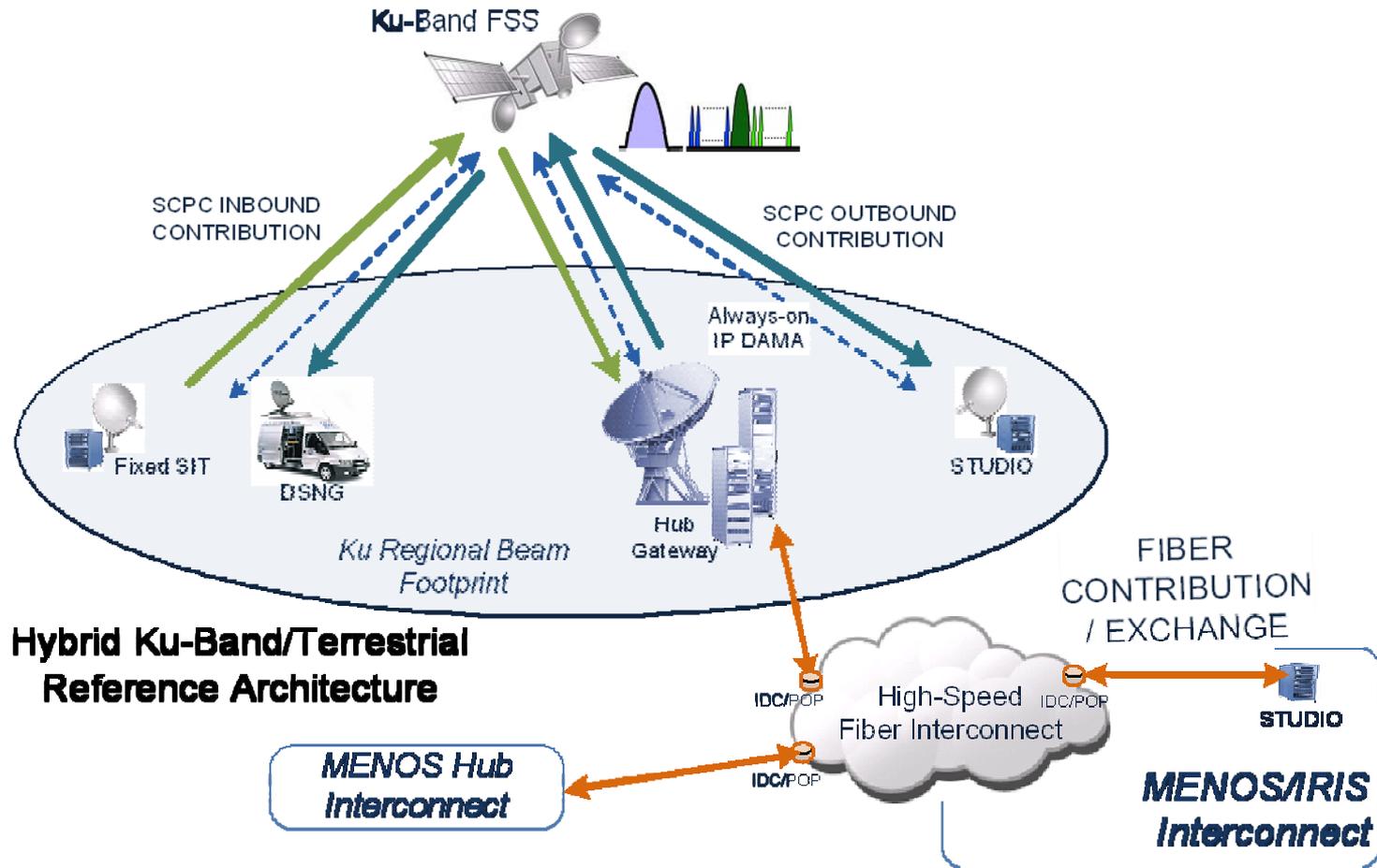
MENOS Today's MENOS in MENA



Ku-Band MENOS Reference Architecture

MENOS MENA -> Worldwide Interconnect

Tomorrow's MENOS: MENA + Worldwide Interconnect





IBC2009 Awards Winner

Judges' Award Innovation Award - Content Delivery

Congratulations ASBU and Arabsat



The ASBU MENOS network, developed by Newtec and hosted by Arabsat, is a revolutionary concept for the broadcast industry. A next generation all-IP network for contribution and exchange of multimedia content over satellite.

The MENOS system also provides ASBU a complete range of tools to facilitate coordination tasks and provide additional IP services across the network.

Advanced DVB-S2 modulation technology, combined with the statistical multiplexing of the data, voice, television and radio signals, ensures the optimum efficiency of the satellite bandwidth usage.

"We are very proud of MENOS as one of our most innovative and challenging projects, and we are really appreciative to IBC and to the international community to recognise it. I would like to thank all those who have worked very hard from ASBU to make this regional and Arab project achieve this recognition in their territorial arena."

Dr. Riyadh Najm, ASBU President

"The introduction of MENOS has been a historical moment for the broadcast industry, and we are delighted that the Arabsat satellites are playing a key role in this. We have worked closely with the ASBU to ensure that they have a real technological leadership with this advanced service and are proud of the recognition from their industry, validating our vision for the future."

Khalid Balkheyour, CEO of Arabsat

"This success – coming at such a showpiece event for our industry – caps another remarkable year for Newtec and is really an acknowledgement, not just of our own people and their commitment but for the teamwork between ourselves, Arabsat and the ASBU."

Serge Van Herck, CEO of Newtec



MENOS
Multimedia Exchange Network
Over Satellite



SHAPING THE FUTURE OF SATELLITE COMMUNICATIONS
www.newtec.eu/menos



Winner: Judges Award
Winner: Innovation Award – Content Delivery



THANK YOU

