

CASE STUDY

Radio Republik Indonesia:

The Search for a Highly Available and Versatile Satellite Based Radio Network

Radio is the most important channel of information for the archipelago that constitutes the state of Indonesia. Consisting of more than 18,000 islands, of which about 6,000 are inhabited, radio keeps some 210m Indonesians better informed than any newspaper or magazine. Radio also provides the remotest rural areas with local content and national breaking news. Funded by the government of the Republic of Indonesia and KfW, the German Reconstruction Loan Corporation Bank, the Jakarta-based state-owned radio broadcaster Radio Republik Indonesia decided to modernize and extend its network infrastructure to enhance its service to its listeners. Germany's Studio Hamburg Media Consult International (MCI) was hired to take charge of coordination and project management of the radio network, and partnered with ND SatCom for the satellite-based part of the project. MCI and ND SatCom have teamed up before in numerous satellite news gathering projects including SNG vehicles and TV uplinks.

The issue

RRI issued a set of challenging requirements for its IP based radio contribution and distribution network:



Installation of ground station in Palembang

The public broadcaster wanted not only a radio network with the greatest possible availability and more cost-efficiency than its existing SCPC-based system, but also demanded a "fit for the future" radio network offering a wide choice of scalability, digitalization and application variety. This network has to collect and distribute regional and national content in form of MP3 audio data streams from several studios for its various radio programs. From DVB-IP receive relay stations, the radio programs are distributed terrestrially via VHF to private households.

Why satellite?

The South East Asian region presents several challenges for reliable communications. The geographically fragmented country of Indonesia has little in the way of terrestrial infrastructure and is subject to power surges or electricity outages. High seismic activity and natural disasters such as earthquakes or tsunamis are an even greater challenge to technology.



The tropical climate with its heavy rainfall and high humidity requires robust, environmentally-proven equipment.

Network design

ND SatCom has implemented a star topology VSAT network with the core SkyWAN® technology platform for RRI. Due to heavy rainfall in the region, C-Band was chosen since it provides low atmospheric weather attenuation. To equip the customer with the maximum of redundancy and network control, similarly equipped central 4.9m antenna hubs are located in Jakarta and Bandung. SkyWAN® offers RRI a user-friendly media network management platform and effective management of MP3-based IP

data streams. Using MP3 streams, the transmitted data rate is decreased which additionally saves bandwidth and satellite capacity. One national and 21 regional audio programs are distributed via DVB-IP stream to each receive station where the locally broadcasted program is finally chosen.

SkyWAN® as technology of choice

SkyWAN® is a highly flexible and versatile VSAT system for establishing wide area corporate networks while providing IP, frame relay and voice connectivity. This enables a wide range of end-user business communication applications. SkyWAN® is a perfect fit to RRI's requirement for network upgradeability.



The state-owned broadcaster wants to have full flexibility and scalability for a network extension – using fully meshed topology in which any station can be reached via a single satellite-hop connection. Besides the IP radio application, RRI is also thinking of using the network future for telephony and

internet applications as well as disaster alerts such as tsunami warnings and mobile program contributions.

RRI's benefits

MCI and ND SatCom have implemented a fully scalable, highly available and versatile network which offers the radio broadcaster viable future options. The satellite communication equipment provided is robust enough for the most challenging of weather conditions. There have been no recorded instances of system network failure due to environmental conditions up to now. Nor have we registered any loss of quality during audio stream processing and distribution.



Training with RRI in Jakarta

Furthermore, scarce satellite capacity is used efficiently with MP3 streams at a lower bandwidth. Until today RRI has been broadcasting analogue streams but the network is now ready for the switch to

digital. Streams may even be made available on the internet. The option for a fully meshed network with additional broadcasting and office communication applications provides RRI with high flexibility and attractive upgradeability for the future.

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