Regional Market Focus: *EMEA*

Developments in Commercial Middle Eastern Satellite Communications

By Bruce Elbert, President, Application Technology Strategy, Inc.

Markets for satellite communications equipment and services have expanded to fill the gaps in terrestrial broadcasting and telecommunications networks. Nowhere is this more apparent than in the Middle East, which is the focus of this article. Comprising this picture are satellite operators, such as Arabsat and Nilesat; teleport operators in particular countries such as Dubai, Egypt and Jordan; and service providers who utilize these facilities to deliver applications to their Middle Eastern customers. An example of the latter would be companies that provide Very Small Aperture Terminal (VSAT) services in a two way satellite communications format that use a particularly small dish (70 cm to 1.2 m) to transmit low bandwidth data such as credit card transactions and provide medium data rate Internet services. Satellite TV is a very important service for the region as it occupies most of the available satellite transponders in the region.

The geography and population dispersion in the Middle East seem almost tailor made for satellite communication solutions, and possibly vice versa. The population is centralized in fewer cities then in the US and Europe and those population centers are separated by vast stretches of dessert. While some efforts have been put forth by various national governments to invest in fiber optics, cost and logistics limit the fiber networks to the most important and largest centers. A satellite footprint covers its service area like a blanket and the access by the end user is limited only by their ability to move equipment to a desired location within the area of coverage and keep it running properly.

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The wealthy are choosing to stay closer to home due to political tension abroad. They are spending more and more to make their environment even more luxurious. For example, the super rich are taking overnight camping and hunting trips into private desert preserves. "Connectivity on the yacht, connectivity on the move" are now the norm. This is why we see a rise in the need for auto-deploy, marine and on-the-move satellite connectivity solutions. Everyone, particularly the wealthy, wants the latest state of the art, cutting edge apparatus. As a result, the latest innovations tend to skip over older technologies. In the new high rise towers and hotels in Dubai and residential areas of the Middle East, there is a high demand for IP-based television, voice and other broadband services. Satellite communication technology mitigates the need to spend time, money, and manpower on connecting a new development to a major hub through terrestrial lines and towers.

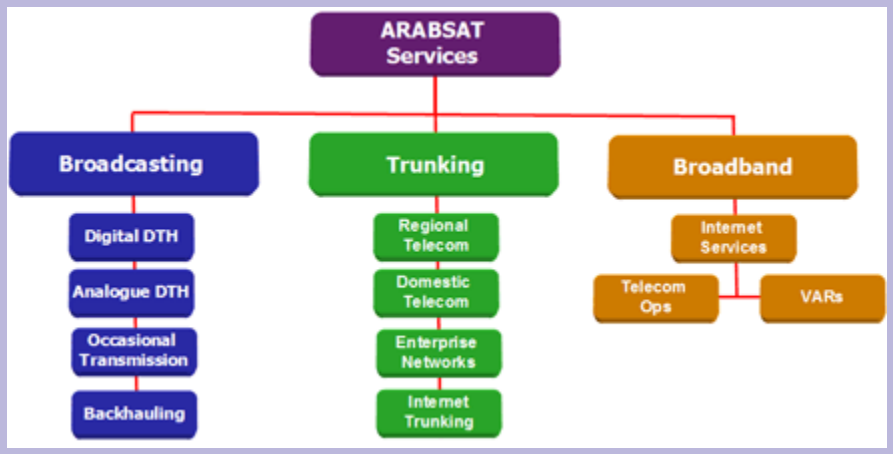
SATELLITE OPERATORS

Most of what is transmitted over satellite in the Middle East is at Ku band, which is more effective than C band in signal strength and the small antenna size that relates to it. In the United States, C band is the standard for cable and over-the-air network TV because it is less susceptible to disruption from heavy rainfall. Even in the Jordan Valley, the wettest part of the Middle East, the average annual rainfall indicates that even a particularly heavy storm is within the acceptable limits. The rest of the Middle East is one of the driest regions of the world and so Ku band is nearly an optimum fit. We focus, then, on Ku band as this is the portion of the spectrum best able to deliver broadband services throughout the region.

In 1976, the Arab League (which, at the time was made up of representatives from Egypt, Iraq, Jordan, Lebanon, Saudi Arabia, Syria, Yemen, Libya, Sudan, Morocco, Tunisia, Kuwait, Algeria, United Arab Emirates, Bahrain, Qatar, Oman, Mauritania, Somalia, and the newly admitted Palestine) founded Arabsat with the express purpose of creating and operating the first Arab satellite communications system. As time progressed, the benefits of satellite communications in the Middle East revealed themselves to governments and individuals both in the region and abroad. Where media providers once had to broadcast to the region from the outside (generally out of London), there are now a variety of locations, including "media cities," that permit both international and local content providers to be closer to their audience within the Middle East.

In addition to leading satellite operator Arabsat, there are a number of other operators that offer transponder capacity to the ME region. European regional operator Eutelsat expanded its coverage to include the Middle East and Africa (among other areas). Egyptian satellite operator Nilesat launched Nilesat 101 in April of 1998 and began broadcasting over Africa, the Middle East and Southern Europe a month later. A startup operator called Yahsat has been established in the UAE and its first satellite is planned to be launched in the next few years.

Table 1. Arabsat Service Offerings



"In just a few years, the region has experienced great demand growth for broadcasting and data transmission bandwidth," according to industry veteran Scott Sobhani. "This demand has contributed to a severe shortage of regional transponder capacity, as evidenced by the rapid escalation of market rates on leases. The imminent introduction of Ka-band and S-Band services by the satellite operators will serve to fulfill some of the demand, especially that resulting from the rapidly growing data traffic (3G/4G, mobile TV) requirements of regional mobile network operators." Scott has made many contributions to satellite communications development in the region, including the recent commitment of Arabsat to a Proton

launch by International Launching Services.

Each of these fleets provides a range of services, generally including television and radio broadcasting, data services and cellular backhaul. For the most part, these companies, including Eutelsat, are the products of national governments investing to advance the technology and culture of their region; this creates a curious mix in the broadcast content of state and privately controlled channels.

Buildings under construction in the Dubai Media City Complex
(image courtesy of Dubai Media City)

Arabsat

Headquartered in Riyadh, Saudi Arabia, Arabsat currently owns and operates four satellites at two orbital positions: BADR-4 (26° E), BADR-3 (26° E), BADR-C (26° E) and Arabsat-2B (30.5° E). Arabsat serves the private and public sectors, consisting of regional and international organizations, corporations and local businessmen. Also addressed is the range of telecoms, including Internet service providers and operators in telephony trunking, cellular backhaul, Internet broadband access, as well as the provision of VSATs and other interactive services.

Arabsat has ordered two major new satellites, Arabsat 5A and BADR 5, from a consortium of Astrium and Thales/Alenia. To properly address Arabsat's markets for the next 20 years, Arabsat 5A will have 16 C-band and 24 Ku-band transponders to replace Arabsat 2B. BADR-5 (in essence, Arabsat 5B) will provide full in-orbit back-up for BADR-4 and BADR-6 at Arabsat's 26 deg East hot spot covering the Middle East.

The services offered through Arabsat are identified in Table 1. (courtesy of Arabsat).

Nilesat

Nilesat, which is under the supervision of the Egyptian Ministry of Information, was founded with a focus on DTH broadcasting and data transfer services which are used extensively for media and education. The organization currently has two satellites at 7 degrees West. In 2005, Nilesat contracted with Eutelsat for the services of a third satellite, formally Hot Bird 4 and now called Nilesat 103.

Eutelsat

Eutelsat was founded in France as an intergovernmental organization and evolved into a private company, Eutelsat S.A. (traded in Paris). The organization's fleet has grown from a modest 5 to 24 different satellites, four of which are rented. The list of services offered by Eutelsat consists of broadcast services, satellite broadband services, telecomm services, and maritime communications.

The European orbit locations of Eutelsat, ranging from 8 degrees WL to 35 degrees EL, are capable of serving the Middle East and all of Africa; however, the majority are only intended to cover the population centers of the northern-most tier of the Arab League countries. Atlantic Bird 2, for example, is used to deliver programming in Arabic and other regional languages.

Yahsat

Al Yah Satellite Communications Company (Yahsat) is a subsidiary of Mubadala Development Company and the newest entrant to the Middle Eastern satellite communication systems industry. It is so new, only just formed this year, that they do not yet have a fleet in orbit. The two satellites Yahsat will operate are being constructed as a joint effort between Astrium and Thales Alenia Space. Current plans announced by Yahsat have the first satellite going up into

an orbital position of 52.5 degrees East in 2010 with the second following within a few months. Yahsat intends to rent capacity out to existing content and service providers with a focus on broadband services as well as broadcast and corporate networking. Use by the UAE government is also planned.

In their first public statement of August 16, 2007, Yahsat president Jassem Al Zaabi stated that strong demand for satellite capacity has led to an opening for a new player such as Yahsat, even though there are many satellite operators present in the Middle East.

TELEPORTS AND MEDIA CITIES

A teleport is a ground-based facility located in or near a major city or economic zone and containing one or more satellite communications earth stations. Its purpose is to serve multiple user organizations that operate independently to broadcast and/or receive information from one or more satellites. Teleports are often found in an economic zone called a "media city" dedicated to serving the needs of mass media companies in proximity to each other. New York City, home to all major US TV networks and many cable TV networks as well, would qualify as a very large media city. Within NYC there are as many as 20 operating teleports. The media city designation would likewise apply to London, Hollywood, and Singapore. In the Middle East, the term "media city" is applied to an area identified by the national government and designated as a tax-free zone where media companies can enjoy various benefits for doing business and originating their Middle Eastern-directed content. In addition to the tax free status, content suppliers and operators may enjoy a more accommodating regulatory environment.

Dubai Media City

Dubai Media City (DMC) was the first media city to strongly establish itself and is an area designated as a tax free zone specifically for media producers and broadcasters. DMC was created by the investment arm of the Dubai government as an "open and flexible environment" to encourage media companies to base their efforts in tapping the opening markets of the Middle East out of the UAE and specifically Dubai. This effort has been very successful and some of the companies that have taken advantage of the benefits include CNN, BBC World, CNBC Arabia, and Showtime Arabia.

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Sama Communications Company Limited (Samacom) is the principal DMC operating entity and is a member of Dubai Holding Group, United Arab Emirates. According to their website, Samacom is a vertically integrated satellite services provider that owns and operates its own communication infrastructure, enabling it to act as a strategic partner to its customers. Technical facilities include: a state of the art teleport, professional and highly specialized manpower, and an operational infrastructure with support and solution-development services. As of November, 2007, Samacom can access the following satellites and all of their digital broadcast channels are "free to air":

- Arabsat "Badr-3"
- Arabsat "Badr-4"
- Nilesat
- Asiasat 2
- Asiasat 3S
- Hotbird 2
- Atlantic Bird 2

Many of popular cable and broadcasting channels first entered the ME market by originating their signals from London. But the combination of a world class business and living environment along with focused tax incentives spurred TV services such as Showtime Middle East to move their entire operation (in 2005) to Dubai from London. This is clearly the direction that major users are taking.

Egyptian Media Free City

The Egyptian Media Free City was founded in 2000 and is located near Cairo, between the Nilesat facilities and Egypt's "Media Production City" (MPC) in an area called "6th of October City". This "private free zone" was created by an invest law to offer a number of attractive benefits such as a tax free environment, freedom from the Egyptian production code for product not intended to air in Egypt,

and, of course, access to the MPC facilities.

Jordan Media City

Jordan Media City had an early existence, dating back to 1928, but was revived in 2001 as a place for the "regional and international media industry with state of the art technologies and professional and experienced staff" to operate in a tax free environment. It was the result of a joint effort between the government of Jordan and Sheikh Saleh Kamel , the owner of Dallah Production Company of Saudi Arabia. Jordan Media City and Arabsat are now working closely together to provide production and teleport facilities to Arabsat's content and service providers. Last year, the two agreed to a joint venture that would create a new production company with working capital, a new HDTV studio, 16 channel playout capacity, and mobile broadcast vehicles with the intention of reaching a larger international audience.

SERVICES AND SERVICE PROVIDERS

A service provider is a commercial or government organization that offers and delivers a product to an end user and is compensated for doing so, either through subscription or advertising revenue. Generally in the past, satellite service providers for the MENA region operated out of hub facilities in Europe were resources, stability and qualified staff were more readily available. With the development of media cities, service providers have both moved back and sprouted up fresh. However, there remains a basic dichotomy between service providers who reside within the region and those who prefer to retain their operations on European soil. For those within MENA, the shortage of trained staff causes many providers rely on foreign companies like Harris and GlobeComm Systems of the US and Alcatel and ND SatCom of Europe, who have the expertise needed to put a new system into operation.

The geography and population dispersion in the Middle East seem almost tailor made for satellite communication solutions. (Thuraya photo)

In the following paragraphs, we briefly review two general classes of service providers: broadcasters, who concentrate on delivering free and subscription TV programs and channels; and broadband service providers who address specialized two-way communications needs for Internet access, telecommunications trunking and backhaul links for Internet Service Providers and cellular telephone operators. The TV programmers and network providers are by far the largest users of satellite capacity in the region and have become very visible locally and internationally. As discussed in the Introduction, the availability of low-cost VSATs has increased the availability of the Internet and data applications, which are taking hold in many MENA countries.

Broadcast – TV, Radio and Digital Content

In the early 1990's, a media organization wanting to broadcast via satellite to the Middle East would need to do so from London. There were already satellite communication service providers in the Middle East at this time, but they were still relatively young companies. The Middle East Broadcasting Center (MBC), discussed above, became the first free-to-air broadcaster over satellite to the Middle East operating from a teleport in the UK. Most of the content on MBC was licensed or syndicated media of both Arabic and international origin.

The ability to receive broadcast media with an Arabic focus, as well as providing popular international content, was well received by customers and, subsequently, advertisers. This spurred growth in not only MBC, which now broadcasts six free-to-air 24 hour thematic channels and a radio station out of Dubai Media City, but also gave a boost to commercial interest in Arabic broadcast media, prompting them to want to "be closer to the audience" and base their efforts out of the arising media cities.

Nilesat Thematic Channels. The Egyptian Radio and Television Union (ERTU), which describes itself as a public corporation but reports directly to the Egyptian Department of Information, created a series of thematic channels for the launch of the NileSat program. Each was themed on a particular topic, including a number of channels that focused on various general levels of education.

In the late 1990s, Nilesat switched these channels from "free-to-air" to "free-to-view". When something is free-to-air, it means that any set-top-box (STB) capable of picking up the signal can read and permit the user to view the content. What Nilesat did was digitally encode their signal, but did not encrypt it. No subscription was required, but customers needed to purchase a branded Nilesat STB to view the free content. Nilesat quoted in a press release that 500,000 units were sold, but this number was described as "optimistic and grossly exaggerated" by competitors. As a result, the performance of this bouquet of programming did not convince advertisers that it could compete with the uncertain number of homes still viewing free-to-air terrestrial signals. Making the channels free-to-view severely limited the audience, and by extension the advertising revenue as well.

In 2000, Nilesat's thematic channels were switched to a subscription model to garner more revenues. Today, most of these channels are still pay-to-view and include seven themes from health to news, as well as educational channels.

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Dream TV was Egypt's first private television channel, founded in 2001 by businessman Ahmed Bahgat who named it for his dream of having a media provider that was not under government guidance and censorship. Dream consists of two free-to-view channels: Dream 1, conceived as catering to a youth market and currently bills itself as a music channel; and Dream 2, a movie channel that also shows "variety" content as well as a popular news program called "10 PM".

Showtime Arabia was founded in 1996, and is provided by subscription over the Nilesat 101 satellite. Showtime Arabia produces 20 different channels of their own under six different brands: ShowKids, ShowShasha, ShowSeries, ShowSports, ShowMovies and ShowCinema. Along with these offerings, subscribing to a Showtime bouquet of channels gives access to a wide variety of international content such as Cartoon Network Middle East, MTV Europe, Hallmark Channel Russia & Middle East, BBC Food, Disney Channel Middle east, and Al Jazeera Children's Channel.

Arab Radio & Television Network (ART) was founded in 1993 as a private network and is currently held by the Arab Media Corperation (AMC). With a focus on family entertainment, most of ART's channels are Subscription, though two of those, ART Teenz, which is a cartoon channel, and Iqraa, which provides religious programs, are not encrypted.

Al Jazeera is a well-known broadcasting group that operates out of Doha, Qatar. Its influence stretches beyond MENA into literally every continent. Programming consists of news and entertainment, the Al Jazeera Children's Channel having been mentioned under Showtime Arabia.

Broadband Services – Internet, Telecommunications and Cellular

Cellular backhaul refers to satellite services for a cell network that

comprise bi-directional point-to-point satellite links between remote base stations and the switching center used to establish mobile telephone calls. More recently, cellular operators are also providing various forms of data communications, including Internet access and email. These are carried over backhaul links as well. Every satellite communications provider lists cellular backhaul as a function their fleet is able to perform; and many cellular operators obtain this satellite capacity and combine it with their own earth stations.

Broadband Internet Access Satellite-delivered broadband Internet access has been a reality in the US, Canada and Australia for many years. This results from low-cost VSATs and satellite bandwidth that are offered at prices not substantially greater than high-quality terrestrial equivalents like cable modems and DSL. This technology is available in the Middle East but at a premium in terms of equipment cost and service charges and is not affordable by the general public.

Companies like Corpskies, which provide Internet service through ArabSat, blanket the Middle East with Internet connectivity. End users in the Middle East enjoy satellite services because there is a greater chance of being able to get around government firewalls that block selected content.

A big challenge in providing broadband services via VSATs is the lack of reliable facilities to tie into. Without electrical power of good quality, proper grounding, and spare parts, VSAT services may not be any more reliable than a low grade dial up circuit. On the other hand, some organizations pay the price of having these arrangements ahead of time and so can perform their necessary functions unimpaired.

Conclusion

Like the history of satellite communications in other regions, the MENA experience is rich in experience and unique in its perspective. As indicated by Scott Sobhani, there is a vibrant demand for current and evolving services, and some new operators are finding opportunities for investment. Currently, nearly all requirements are met through standard Ku-band satellites using the resources of media cities and a mix of local and foreign ground resources. Ka band is arriving on the scene in the next few years, which will add a new dimension to broadband service provision. This could further shape the telecommunications scene in MENA in ways much different from North America and Western Europe.

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More of the Same?

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overcapacity in the past two years has failed to materialize, but remains a viable option should overcapacity persist in 2008.

Telecom analysts still believe operators must create partnerships among themselves and introduce new applications in emerging services such as HDTV and IPTV to generate added revenue streams.

Asia's low transponder utilization rates should goad operators into alliances with those who already in orbit satellites before deciding to launch new capacity to ease price pressures from overcapacity.

The pressure to merge because of rising overcapacity is receiving impetus from ChinaSat-6B and SinoSat-3. AsiaSat is especially concerned about both satellites, which are now operational.

AsiaSat chairman Mi Zeng Xin said Chinese TV broadcasters currently transmitting via AsiaSat's satellites might move to these new spacecraft. This feared switch will have an adverse impact on AsiaSat's revenue since contracts with Chinese TV broadcasters accounted for about 9% of AsiaSat's total revenue in 2006.

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