

Alcatel-Lucent Unlimited Mobile TV Solution

Deliver Complete Mobile TV for Your Market by Partnering with Alcatel-Lucent



- Unlimited Audience
- Unlimited Number of Channels
- Unlimited Coverage
- Maximum Interactivity
- Unlimited Entertainment
- Unlimited Usage



Mobile TV Ready for Prime Time

Today's mobile end users want more from their mobile services. They want advanced services that let them download and play songs and videos, send text messages, conference with colleagues and friends, and exchange pictures or videos on whichever device they are using. Now, mobile end users worldwide are showing a growing interest in mobile TV. In fact, the European Commission estimates that mobile TV could be a market of up to €20 billion by 2011, reaching approximately 500 million customers worldwide.



Where it is available, mobile TV has been successfully deployed on existing cellular infrastructures in point-to-point mode. But this approach is not designed to deliver the same content to many users at the same time. It prevents mass-market deployment and, due to potential congestion, does not allow mobile service providers to deliver the high quality of experience end users demand.

To go beyond point-to-point offerings and provide mass access to mainstream TV channels on mobile, service providers must deploy dedicated mobile broadcast networks that are complementary to existing cellular networks. But the design of these networks may be expensive and risky.

Alcatel-Lucent minimizes the expense and risk of mobile TV deployment with a mass market solution that addresses the expectations of consumers, television broadcasters and mobile operators.

Simplify the Delivery of Mass Market Mobile TV

The Alcatel-Lucent Unlimited Mobile TV solution simplifies the delivery of mass market mobile TV. It's a complete, turnkey solution that allows you to present end-users with a truly diversified Mobile TV offer based on a mix of mainstream broadcast channels and an unlimited number of specialty unicast channels.

The mix of broadcast and unicast services, combined with interactive capabilities made possible by Alcatel-Lucent's content management and service platform, can improve customer retention and drive higher mobile service revenues. And, the Alcatel-Lucent Unlimited Mobile TV solution delivers service to your whole market because it is designed to provide exceptional indoor coverage and service availability throughout a whole country or region.

The result is a mass-market mobile TV option tailored to deliver an unlimited number of TV channels, to an unlimited mobile audience with unlimited coverage.

Leverage the Experience of a Trusted Partner

With the Alcatel-Lucent Unlimited Mobile TV solution, you leverage Alcatel-Lucent's experience and expertise delivering mobile video and TV services around the world.

As your trusted mobile TV partner, Alcatel-Lucent helps you design, develop, deploy and operate an effective mobile TV solution optimized specifically for your environment. Alcatel-Lucent's partnership approach helps you:

- **Select the technology that fits you best**
- **Initiate an efficient mobile TV business**
- **Deploy and operate an unlimited mobile TV service**



Unicast and Broadcast: Complementary for Unlimited Mobile TV

Unicast is communication between a single sender and a single receiver over a network. An earlier term, point-to-point communication, is similar in meaning to unicast. Typically, current 3G networks are unicast, which means that there are as many mobile TV signals as there are number of viewers simultaneously watching a given program.

By contrast, broadcast is communication from one sender to all potential receivers in a given area/region.

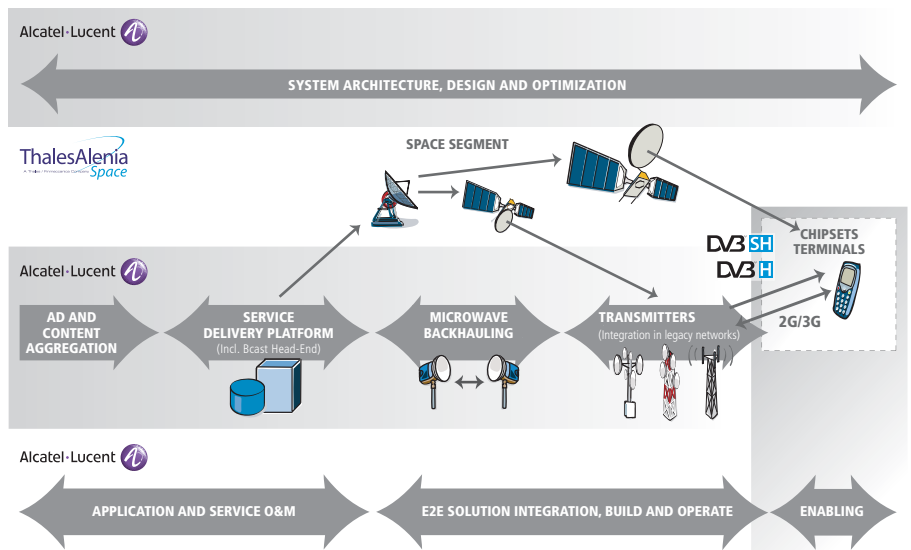
Select the Technology that Fits You Best

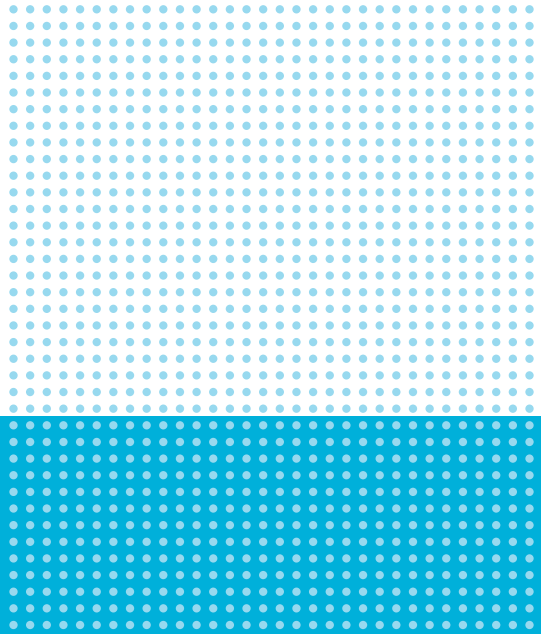
To deploy and integrate a mobile broadcast overlay with your network for a truly mass-market mobile TV offering optimized for your market you must address many challenges:

- What spectrum is required?
- Which standard is most appropriate?
- How can you achieve your target coverage?
- Can you reuse your existing assets?
- What is the best way to combine services?

Alcatel-Lucent has addressed these and other technology challenges with the Unlimited Mobile TV solution. This solution makes optimal use of existing network investments and resources and combines them with the best technical capabilities of various technologies and spectrum options to deliver a complete end-to-end solution designed to be easily adapted to your needs.

Figure 1. Alcatel-Lucent Unlimited Mobile TV Solution with DVB-H/-SH





Depending on your current assets (network and spectrum) and service objectives, the Alcatel-Lucent Unlimited Mobile TV solution offers different infrastructure options to deliver mainstream channels:

- High-power mobile broadcast satellites which provide direct terminal reception across rural areas countrywide
- Medium- to high-power transmitters for urban/suburban outdoor reception
- Low-power transmitters for cellular-like quality of service in urban indoor areas

Full flexibility between terrestrial and satellite backhauling is also provided to feed these infrastructures with the channels to be broadcast.

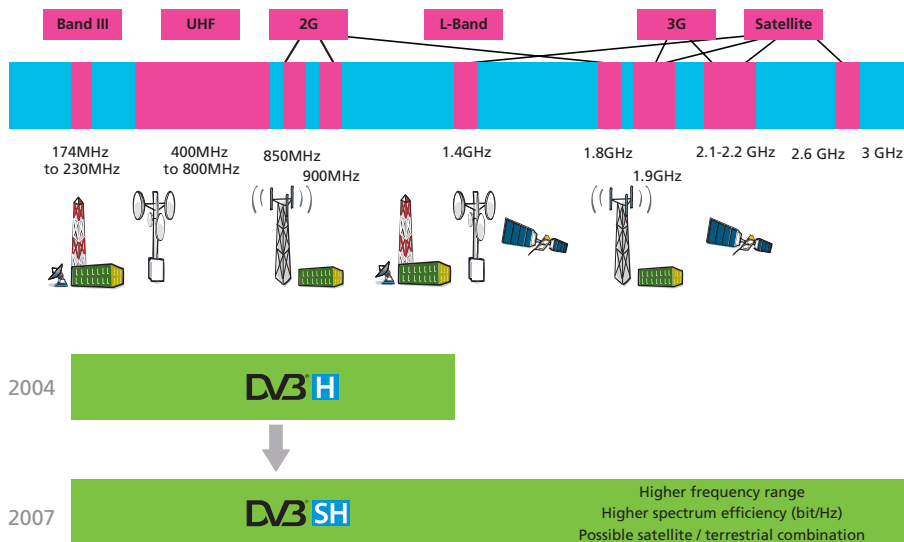
End-user terminals receive broadcast TV either from terrestrial repeaters or from the satellite, and unicast TV from a 3G broadband connection.

To deliver the content, the mobile TV service delivery platform adapts and aggregates TV programs and rich multimedia services into IP service

streams and selects the transmission format, either broadcast, or unicast (2G, 3G, etc.), depending on the targeted audience.

The service delivery platform lets you provide end-users with interactive and personalization features such as chat, voting, and click-to-buy. And it provides seamless access to related services, as well as cross-advertising opportunities on any combined unicast and broadcast network.

Figure 2. Alcatel-Lucent: Selecting the Standard Adapted to Your Spectrum Options





Alcatel-Lucent Unlimited Mobile TV Solution is based on DVB-H/SH standards

The complete Alcatel-Lucent solution gives you the most flexibility for a mobile TV service designed for efficient operation and optimum coverage. Based on DVB family mobile TV standards, it offers wide spectrum availability, from UHF up to 3GHz. It allows you to choose the best combination of DVB-H and DVB-SH technologies for your market. And it accommodates multiple infrastructure options, from satellite, to broadcast towers and cellular sites.

And as a true pioneer of the DVB-SH technology, Alcatel-Lucent has established an ecosystem of industrial and research partners to optimize the delivery of Unlimited Mobile TV based on this new technology.

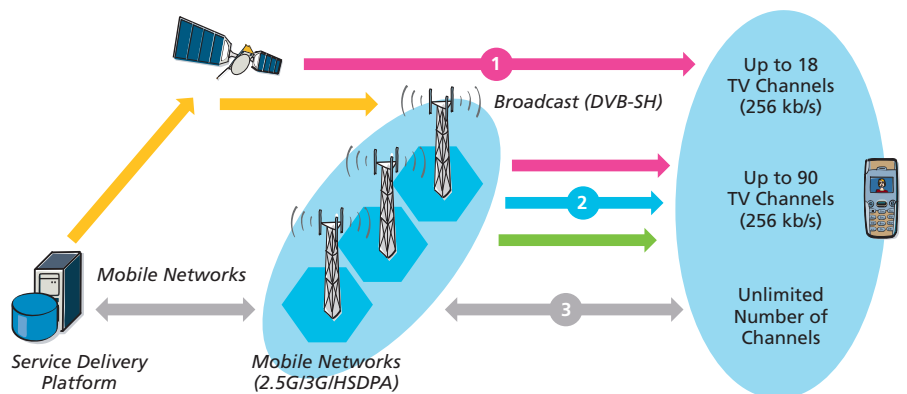
New DVB-SH Specification Enables Delivery of Mobile Multimedia Services Using Hybrid Satellite/Terrestrial Networks

The new Digital Video Broadcasting-Satellite services to Handhelds (DVB-SH) specification is an evolution of the Digital Video Broadcasting-Handheld (DVB-H) standard. It enhances the range of DVB standards for the delivery of mobile digital television.

The DVB-SH standard enables the delivery of IP-based media content and data to handheld terminals like mobile phones and PDAs via satellite. It has been designed for frequencies below 3 GHz. It complements the existing DVB-H physical layer standard and uses the DVB IP Datacast (IPDC) set of content delivery, electronic service guide and service purchase and protection standards.

DVB-SH includes features such as turbo coding for forward error correction and a highly flexible interleaver in an advanced system designed to cope with a hybrid satellite/terrestrial network topology. Satellite transmission ensures wide area coverage and the terrestrial component assures coverage where the satellite signal cannot be received, as may be the case in urban areas.

Figure 3. Alcatel-Lucent Unlimited Mobile TV Solution in DVB-SH





Alcatel-Lucent Supports Major Standards – DVB-H and DVB-SH



9600 DTH TRANSMITTER (UHF BAND)

Alcatel-Lucent has developed a digital transmitter for broadcasting DVB-H television services to mobile users, which can also broadcast DVB-T signals to fixed users of digital terrestrial television.

Emerging network architectures need low-power transmitters that can provide radio coverage with the same quality delivered by cellular networks. The Alcatel-Lucent 9600 DTH meets these requirements. Two versions are available — the 9600 DTH 50 and the 9600 DTH 100 — which offer 50 Watts or 100 Watts of output power, respectively.

This transmitter is an ideal solution for implementing DVB-H/T networks in the UHF band. Unlike standard broadcasting transmitters, its features are designed to support mobile-cellular network deployment, including a compact form factor adapted for installation in mobile sites.



9600 DTR DIGITAL TRANSMITTER (S-BAND)

The Alcatel-Lucent 9600 DTR is based on a flexible architecture, which makes it a true hardware platform covering any potential need up to the upper S-band (2.7 GHz), using either the DVB-SH waveform or any other standard.

This transmitter has triple carrier capability, as well as auto-adaptive non-linear pre-correction, an integrated DVB-S/S2 demodulator, Gigabit Ethernet traffic interfaces, and an internal GPS receiver for single frequency network (SFN) operation (as in the 9600 DTH).

The high power amplification is band and power specific, due to the broad range of requirements (470 MHz to 2700 MHz, and from 10 W to 300 W), and indoor and outdoor configuration options available.



Mobile Interactive TV successes

Alcatel-Lucent media solutions include mobile interactive TV applications, which allow extensive interactivity and personalization, complementing traditional live TV with made-for-mobile content, creating the possibility to provide targeted advertisement supported content to end-users.

Alcatel-Lucent is heavily involved in interactive mobile TV deployments, with more than 80 mobile operators around the world using its superior end-to-end video and music solutions to enable their mobile video, music and live TV services, including Orange World Video portal, Telefónica in Spain and Mexico, T-Mobile in Germany, the UK and Austria, MTN South Africa, Optimus and SIC TV in Portugal.

Alcatel-Lucent demonstrated the world's first unified Mobile TV experience across 3G and broadcast networks, enabling a compelling Mobile TV end-user experience combining unicast and broadcast Mobile TV channels connected to the same service platform on the same handset.

Leveraging Mobile TV, interactivity and personalization, Alcatel-Lucent enables the generation of new services, additional revenues and new advertising models.



Initiate Your Mobile TV Business

Beyond providing the most effective technology options with the Unlimited Mobile TV solution, Alcatel-Lucent can also help you kick-start your mobile TV business.

As your mobile TV partner, Alcatel-Lucent works with you to develop a complete understanding of your market and your end users' service expectations.

For example, the Alcatel-Lucent Worldwide Lab (www.alcatel-lucentlab.com) conducts qualitative research that sheds light on what end users around the world expect from new, personalized services. Recent research conducted by The Lab revealed the top five issues users have with current mobile services and the top five features users appreciate about current services. With this and other research, Alcatel-Lucent can provide insight into what kind of mobile TV service will work in your market, what end users in your market will pay for an enhanced service offer, and how that offer should be positioned.

Acquire Licenses, Build a Business Case

Once you know what kind of service to introduce, we will work with you to navigate through the various spectrum licenses required to operate your mobile TV service.

We'll help you build a business case that ensures you meet all your business objectives while keeping capital and operational expenditures in line.

And we'll also establish and initiate ad-hoc partnerships and consortiums with independent, technology-agnostic third parties to make sure you build your business based on the most effective technologies for your market.

Mobile TV Memberships

Alcatel-Lucent is member of several key industry bodies committed to the success of mobile TV worldwide, including the bmco forum (Germany), the Forum de la Télévision Mobile (France) and the Mobile Digital TV Alliance (USA). Alcatel-Lucent representatives also actively contribute to the work of the DVB Project and of the UMTS Forum and GSM Association joint mobile TV Workgroup, of ETSI and of OMA (Open Mobile Alliance).

Capitalize on Our Market Knowledge

Alcatel-Lucent continuously performs end user focus groups and studies in order to design services that match end user demands. This research clearly indicates that end users are waiting for, and are ready to pay for a mobile TV offering that delivers a large variety of choices, a high level of personalization, maximum interactivity, and great quality of service — everywhere.



“SFR has always stood at the forefront of innovation in order to provide all its clients with the most attractive mobile services. This is why we wished to evaluate the hybrid technology proposed by Alcatel-Lucent based on the new DVB-SH standard specified by the DVB Project, in just the same way as we had tested the DVB-H standard last year. These technologies, which are recommended at national and European levels, seem to us interesting to evaluate, considering the growing success encountered by mobile TV among our customers.”

— JEAN-DOMINIQUE PIT,
DIRECTOR STRATEGY AND
INNOVATION AT SFR



Alcatel-Lucent Enables Mobile TV Launches Worldwide

Alcatel-Lucent is a trusted mobile TV solution provider for operators around the world.

SES AND EUTELSAT, EUROPE

SES Global and Eutelsat Communications have joined forces to establish the first European satellite infrastructure for broadcasting video, radio and data to mobile devices and vehicle receivers.

Under the joint venture, SES and Eutelsat have agreed to create a company, which will operate and commercialize the S-band payload on the W2A satellite. The S-band space segment represents an investment of approximately €130 million. It will allow the delivery, for the first time, of mobile multimedia broadcast services directly to user terminals in France, Germany, Italy, Poland, Spain or the UK. The satellite is supported by a hybrid infrastructure that combines satellite and terrestrial networks and delivers universal coverage and indoor penetration for mobile TV services.



“ICO is expanding its relationship with Alcatel-Lucent. We have confidence in their ability based on both their leadership in DVB-SH development and their extensive experience in systems design and deployment.”

— TIM BRYAN, CEO, ICO

ICO GLOBAL COMMUNICATIONS, UNITED STATES

Alcatel-Lucent is working with ICO Global Communications to launch a market trial of ICO's Mobile Interactive Media (“MIM”) services. As ICO's mobile TV partner, Alcatel-Lucent will provide end-to-end network integration services as well as equipment, engineering and implementation services. The MIM service offering will be launched over ICO's integrated satellite and terrestrial network and is the first deployment worldwide of a hybrid satellite and terrestrial solution using the new DVB-SH mobile broadcasting standard.

ICO MIM will provide full-duplex, IP data communication services using GMR air interface technology, a full suite of interactive mobile video products using DVB-SH, and interactive navigation, all via an integrated satellite and terrestrial terminal and antenna system.

SFR (VODAFONE GROUP), FRANCE

Alcatel-Lucent has been testing DVB-SH technology for broadcast mobile TV in the S Band with SFR.

This technical test of Alcatel-Lucent's Unlimited Mobile TV solution in the South-West part of France uses SFR's operational 3G mobile infrastructure and pre-commercial DVB-SH elements for the broadcast portion of the network.

The pilot program allows SFR to evaluate the capability of the Alcatel-Lucent solution to make mobile TV available to a large audience with high-quality mobile TV channels. It has tested various usage conditions, such as inside and outside buildings, as well as in moving vehicles.

Deploy and Operate Your Mobile TV Service

Alcatel-Lucent's experience with a variety of mobile TV projects around the world gives us the knowledge and experience you need from a solution partner to successfully deploy a mobile TV service. We understand your operational constraints and the risks associated with any new technology deployment, so we have designed our Unlimited Mobile TV solution to minimize those risks.

Our solution approach gives you a full range of network life-cycle support, from conception and design, through deployment and maintenance.

With more than 20,000 professionals experienced in the delivery of integrated end-to-end telecommunications solutions worldwide, we know how to manage the various partners and

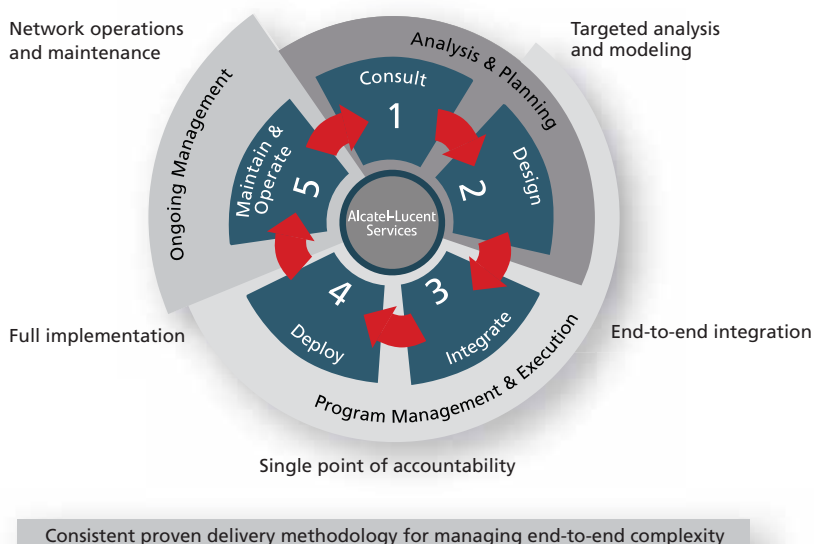
sub-contractors required to make your mobile TV service a reality.

And we have a variety of hosting options that can make any mobile TV deployment simple and efficient.

The World's Leading Network Integrator

Alcatel-Lucent has unmatched experience and expertise in network deployment and operation. As the world's leading network integrator, Alcatel-Lucent supports more than 1,600 products from more than 290 vendors, has delivered over 30 solutions that incorporate more than 90 services, and manages over 55 networks supporting more than 80 million subscribers. Furthermore, Alcatel-Lucent has a recurrent network management business, with over 100 enterprises worldwide.

Figure 4. Alcatel-Lucent Services: Full Range of Network Lifecycle Capabilities





NETWORK OUTSOURCING AGREEMENT WITH E-PLUS IN GERMANY

Alcatel-Lucent is managing several network business divisions of Germany's third-largest mobile communications provider, E-Plus Mobilfunk. Under the terms of the network outsourcing agreement, E-Plus Mobilfunk transferred the operational business divisions responsible for the operation, maintenance and deployment of its cellular network to Alcatel-Lucent, enabling E-Plus to concentrate on its core business, reduce operational expenses and increase network quality.

As part of this agreement, about 750 E-Plus employees in Germany joined Alcatel-Lucent.

E-Plus will maintain responsibility for strategic network planning and network development, including the selection of mobile communications locations and their technical equipment to ensure the long-term quality of its cellular network.

"Our decision to enter a strategic partnership with Alcatel-Lucent is designed to guarantee our subscribers a network of a constantly increasing quality over the long term," explained Elmar Grasser, Chief Technical Officer of E-Plus Mobilfunk GmbH & Co KG. "Alcatel-Lucent is the world's leading network integrator with the resources to meet future network construction and maintenance requirements with greater speed, flexibility and cost synergies than we could alone. And with this step, we're once again playing a pioneering role on the German market."



Partner with Alcatel-Lucent for Unlimited Mobile TV

Alcatel-Lucent is committed to supporting service providers in delivering a truly converged TV experience. We have established a leading position in interactive TV services, and enable TV, video and music services for more than 120 fixed and mobile service providers around the world.

Alcatel-Lucent is also a worldwide leader in the development and deployment of fixed Triple Play and IP-TV.

Leverage Our Mobile TV Ecosystem

Since any mobile TV offering must be supported at every technology level, Alcatel-Lucent's Unlimited Mobile TV solution is supported by an ecosystem of industrial partners that provide:

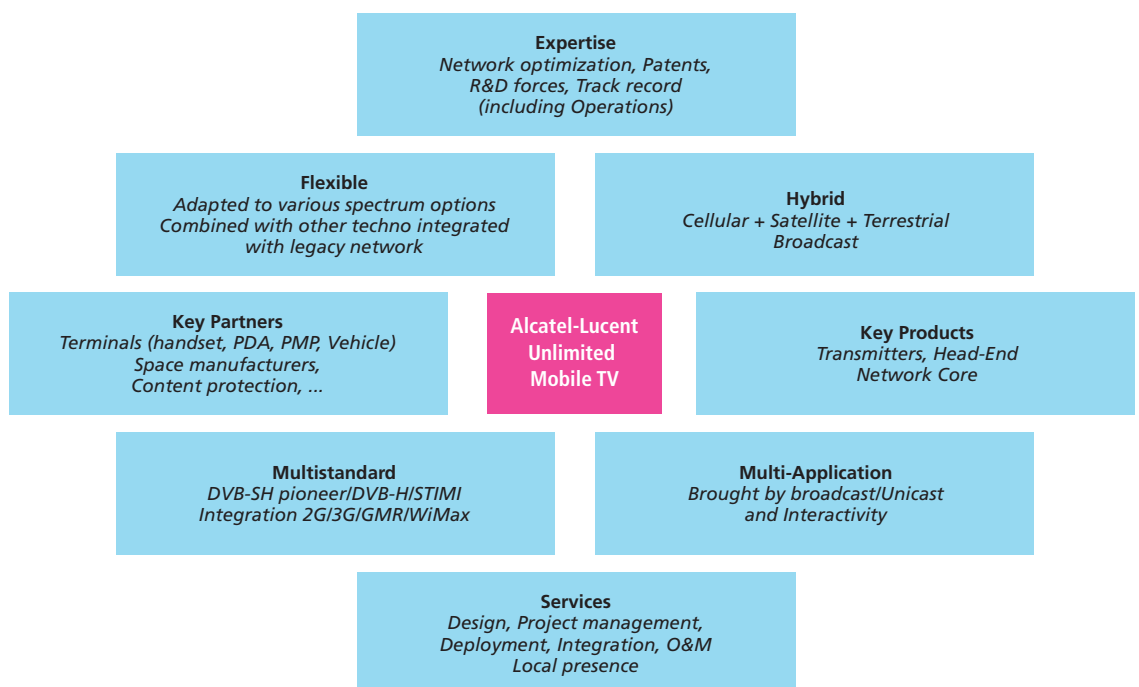
- High-performance DVB-H and DVB-SH chipsets (DiBcom, NXP – founded by Philips)
- Mobile handsets compliant with DVB-H and DVB-SH specifications (Sagem, Samsung)
- Powerful and highly reliable satellite systems for digital broadcasting (Thalès Alenia Space)
- Innovative antenna solutions, in particular in low visual impact antennas, broadband panel arrays and advanced RF combining and conditioning technology for DVB-H, DVB-SH as well as UMTS (RFS)
- Expertise in DVB-T, DVB-H and DVB-SH modulators (TeamCast)
- Expertise in DVB-H and DVB-SH IP encapsulators, DVB-H and DVB-SH network management and network radio resource management (UDcast)

In addition, Alcatel-Lucent has secured the support of renowned international scientific institutions in the field of hybrid satellite and terrestrial reception, complex wave form optimization and the optimal delivery of video and audio services over cellular networks.

Alcatel-Lucent is your trusted partner to design, develop, deploy and operate Unlimited Mobile TV solutions adapted to your environment. The solution:

- provides your customers with a unique end-user experience that smoothly blends mass audience, interactive and personalized multimedia applications on the same device
- offers a telco-grade quality of service and operation, combining multiple networks and infrastructures
- is based on efficient open standards (DVB family: DVB-H and DVB-SH) with different spectrum options

Figure 5. Alcatel-Lucent Unlimited Mobile TV Delivers Value for You and Your Customers



www.alcatel-lucent.com

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