

destination

**LTE** express

MOVE FAST AND OUTCOMPETE

“What’s the fastest  
path to market?  
Converged RAN  
or LTE overlay?”



Reduce  
time-to-  
revenue

FAST-  
TRACK  
ROLLOUT

- 
- Choose the right path
  - Get to market sooner
  - Gain first mover advantage with VoLTE and spectrum refarming
  - Deliver more coverage in less time
  - Supercharge your LTE deployment
  - Get capacity where it's needed fast
  - Why Alcatel-Lucent LTE express

# Choose the **right path**

Don't get sidetracked on your journey to LTE. Differentiate yourself from the competition and reduce time-to-revenue by choosing the right path to your destination.

Although deploying a converged RAN may seem appealing at first glance, it is complicated.

Upgrading your current 2G/3G infrastructure may require decommissioning, removal and replacement of legacy hardware at each cell site. The 2G/3G network that took a long time to optimize must now be re-optimized. At the same time, new LTE hardware must be added. This increases installation, configuration, and integration time, and inflates your deployment costs.

A converged RAN also introduces risk by disturbing a stable 2G/3G network. The 2G/3G site must be taken down before it is switched over to the converged RAN, which can be very disruptive to 2G/3G users.

Ongoing maintenance and upgrades are also more complex with a converged RAN. Software updates are more complicated. The process introduces lag time and makes individual network optimization difficult. And, the converged RAN presents scaling limitations to the LTE network and hinders migration to an LTE virtualized RAN architecture.

## LTE overlay eliminates challenges of a converged RAN

- No 2G/3G downtime required
- Reduces installation, configuration, and integration time
- Streamlines deployment costs
- Enables easier scaling and migration to a virtualized RAN architecture

# Get to market sooner

Deploying LTE overlay with Alcatel-Lucent LTE express is a faster path to LTE and a simpler, more cost-effective way to market with new revenue-generating services. And you can turn up multiple markets simultaneously, so you can make a bigger market impact with one message going out to all potential subscribers at one time.

With LTE overlay there is only one new network to install, configure, integrate and optimize. This focuses your deployment energies and capital resources on LTE. It reduces your initial costs because expenditures are only required for one rather than for multiple technologies. And it eliminates the risks associated with disrupting the stability of your 2G/3G network.

An LTE overlay built with Alcatel-Lucent LTE express also minimizes the need for additional investments in your legacy network infrastructures. By getting to market faster with LTE services you will better position your network to meet the service expectations of subscribers. This will accelerate the migration of your subscribers to LTE and effectively cap any future investments in 2G and 3G technologies.

LTE overlay will also provide better network performance than a converged RAN because network resources, such as antennas, radio heads and baseband units are not shared. Dedicated resources deliver better RF coverage and higher baseband capacity, which delivers a higher quality of service.

## 75% of market leaders choose LTE overlay

- **2x faster than integrating LTE into a converged RAN (LTE is added)**
- **3x faster than a 2G/3G renovation that includes LTE (If a converged RAN is more than 2-3 years old and the groundwork has not been laid for LTE.)**
- **30% better cell edge performance compared to converged RAN reusing the same radios and antennas for both 3G and LTE**
- **40-50% time savings**
- **28% less down time**

# Gain first mover advantage with VoLTE and spectrum refarming

To launch LTE services you need spectrum, either new spectrum acquired at auction or existing spectrum that is freed up and refarmed for LTE.

Voice over LTE (VoLTE) frees up spectrum by keeping voice calls on the LTE network. LTE is up to three times more spectrally efficient than 3G and up to six times more efficient than 2G. Therefore, carrying voice traffic on an LTE network uses less spectrum than carrying the same traffic on 2G/3G networks.

Network models show the benefits of VoLTE over a Circuit-Switched Fall-Back (CSFB) approach where subscribers are rerouted to the 2G or 3G network for voice calls. One such model shows that CSFB requires 9,500 carriers to transport voice traffic. But a network that leverages VoLTE requires only half the amount of

carriers. The remaining 4,750 carriers that are freed with VoLTE can be reused for additional mobile broadband services.

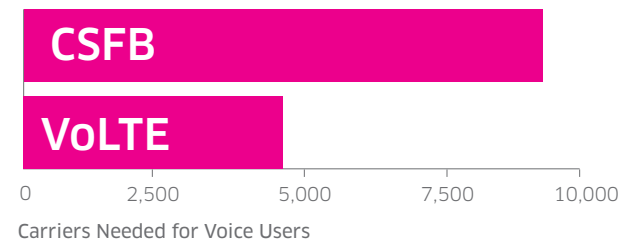
VoLTE and spectrum refarming eliminate the need to wait for a spectrum auction to launch LTE services. They enable you to gain the first mover advantage in your market. Spectrum refarming also makes it easy to use existing sites, masts and backhaul infrastructure to deploy LTE overlay.

To ensure you get the most out of VoLTE and refarming, Alcatel-Lucent LTE express services experts will help you implement the right spectrum strategy by modeling your network to optimize existing spectrum and plan refarming strategies.

Refarming enables operators to get to market fast

- By refarming its 1800 MHz spectrum, EE was able to launch LTE long before other operators in the UK could acquire LTE spectrum.
- Optus refarmed its 2G 1800 MHz spectrum to launch LTE quickly after Telestra's LTE launch
- KT in Korea refarmed its 2G 1800 MHz spectrum to get to market fast with LTE after SK launched LTE services

## VoLTE uses less carriers than CSFB



Source: Senza Fili 2012

# Deliver more coverage in less time

Why build it by yourself, when you can share the LTE deployment and costs?

Alcatel-Lucent LTE express can help you fast track your LTE deployment by configuring optimal network sharing options for maximum coverage, while still enabling you to retain control over the performance of your network.

Network sharing can be used to overcome deployment challenges, such as limited spectrum, lack of site availability and not enough capital, making it easier for you to get to market faster with LTE.

Network sharing options can range from sharing cell sites and masts, to RAN equipment and spectrum, as well as core infrastructures. You can even share an entire network with roaming agreements.

Sharing spectrum allows you to optimize your spectrum assets, while offering better peak throughput rates to users. Alcatel-Lucent LTE express offers a variety of spectrum sharing options to best fit your market requirements.

## More coverage in less time with network sharing

- Verizon achieved 91% coverage of the U.S. in record time by sharing its spectrum and core network with rural service providers under the Rural America program
- TIM and Oi in Brazil are using RAN sharing to cover the 12 cities hosting the 2014 World Cup in record time. TIM expects to save 20% or \$100 million.
- Vivo and Claro are using RAN and spectrum sharing to also cover the cities hosting the 2014 World Cup in record time



# Supercharge your LTE deployment

With so much to think about before you deploy, you can rest assured knowing that Alcatel-Lucent LTE express is backed by a proven deployment model and the expertise, tools, methodologies and experience to get you to LTE in record time.

Based on our wireless and IP expertise and experience deploying the world's largest LTE networks, the Alcatel-Lucent LTE express deployment model ensures your LTE rollout is done right the first time.

Our experts use state-of-the-art tools and proven methodologies to improve the planning and design, installation, integration, optimization, and operation of your new LTE network.

Alcatel-Lucent LTE express services leverage advanced Bell Labs algorithms and tools to deliver the fastest deployment speed in the industry.

We have unique tools and methodologies that can reduce network design and integration time by 50%. With our Remote Integration and Test Center, we can integrate 500 eNodeBs in a single day. And our services team leverages unique Bell Labs tools that can significantly reduce the time and expense of optimizing your network.

Our full service portfolio also goes beyond deployment and integration. It provides ultimate network operations with proactive care services to ensure your network is always operating at peak efficiency. These services are designed to identify potential problems before they become issues that disrupt your network and they have been proven to reduce meantime between failures by as much as 64%.

## Save time and money

- Leverage knowledge from our experience building the densest and most challenging LTE networks in the world
- Save 4-6 weeks of deployment time with end-to-end network level pre-testing (RAN to EPC)
- 50% faster designs
- 30% faster install times with innovative products and proven methodologies
- 50% faster integration times with Remote Integration and Test Center
- 98% reduction in time to troubleshoot dropped calls



# Get capacity where it's needed fast

Once your macro LTE network is deployed, you'll need a fast and cost-effective way to get more capacity to areas with the heaviest traffic. With Alcatel-Lucent LTE express you can quickly deploy metro cells to deliver more capacity to subscribers, both indoors and out.

Because they are low-power, small form factor devices, metro cells can be placed in almost any location close to where people are. They are easily mounted on walls, lampposts, poles and the sides of buildings.

Metro cell deployments are ideal for providing dedicated capacity to high-use urban hotspots, such as hotel lobbies, restaurants, malls, train stations, stadiums, airports and city streets, as well as for filling in coverage holes within the macro network. And they can also be used to

extend coverage to remote rural locations where macros are not cost-effective.

Alcatel-Lucent has created a specialized program, called Metro Cell Express, to help you to overcome the unique challenges associated with a large metro cell deployment, so you can get to market fast. Our services experts perform site selection right the first time using the Alcatel-Lucent HetNet Ace tool, which takes the guesswork out of metro cell deployment.

Once your sites have been selected, we work with your and our partners to quickly acquire many sites at once, including those with access to power and backhaul. And our installers are trained to quickly and cost-effectively install your metro cells and integrate them into your network using our Remote Integration and Test Center.

## Metro cells provide extra capacity where needed fast

- No towers needed – deployable in more diverse sites
- Less regulatory approvals needed
- More flexible backhaul options (GPON, Ethernet, 60 GHz LOS P2 microwave, and Sub 6 GHz microwave)
- Easier and quicker to install





# Why Alcatel-Lucent **LTE** express

Your destination is LTE, and we'll get you there on an LTE overlay route that is faster, simpler and future proof. We have the products, the experience and the services to help you rapidly deliver the outstanding LTE experience your consumer and enterprise customers are demanding.

## Faster

**Available now:** We deliver the fastest and furthest-reaching high capacity network.

**Faster time to market:** We have the right wireless and IP experience, expertise and services gained from deploying the world's largest LTE networks. Our complete LTE overlay solution can be deployed in record time, beating all market estimates.

## Simpler

**Turnkey solution:** Market and network planning, site selection, network design, integration, backhaul, power, maintenance, SON and more.

**Expertise** of the world's specialist in IP Networking and Ultra-Broadband Access with a leading portfolio spanning macro, small cells, backhaul, packet core and applications. We have built – and continue to build – the largest, highest capacity LTE networks in the world.

**One throat to choke:** We worry about project dependencies so you don't have to.

## Future-proof

**Scalable architecture:** LTE overlay architecture designed for huge signaling and data plane scale.

**Scalable networks:** Near invisible and low power small cells increase network capacity up to 10x.

**Scalable operations:** Build, Operate, Transfer (BOT) delivers massive near term turn-up of resources when and where needed.

**Ongoing Innovation:** Backed by our innovation powerhouse Bell Labs, Alcatel-Lucent continues to bring advanced lightRadio™ technologies and products to market. Our LTE investment is shaped by the world's largest and most aggressive FDD and TDD operators deploying Carrier Aggregation, VoLTE, eMBMS, virtualized RAN and small cell HetNets.

To learn more about how Alcatel-Lucent LTE express takes you to LTE sooner, contact your local Alcatel-Lucent sales representative.