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Key Event Experience services maximize spectators' satisfaction at the world's biggest football tournament

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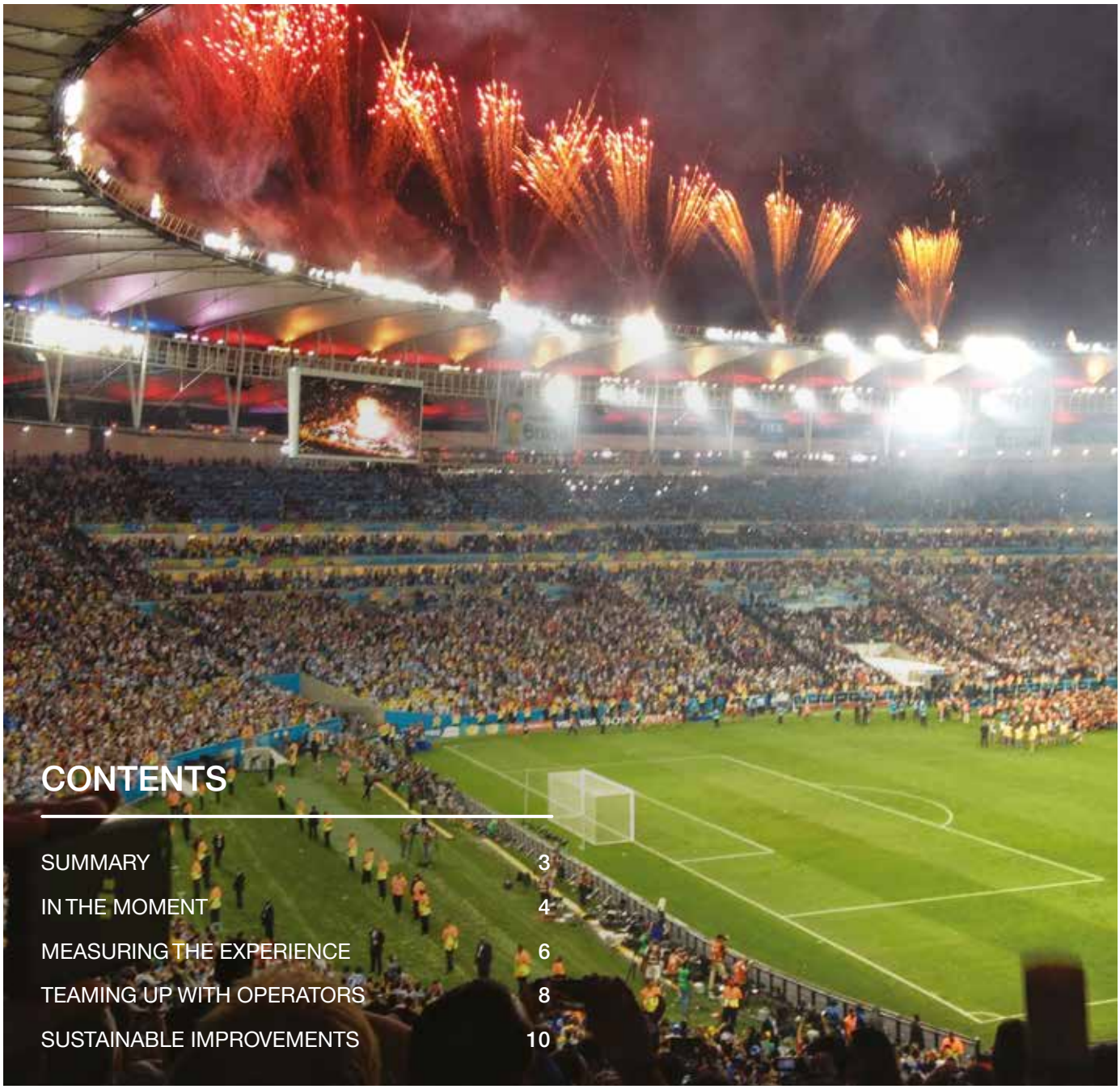


CONTENTS

THE EVENT OF THE YEAR

Hosted at 12 different venues within 12 host cities in Brazil, the 2014 international football tournament was one of the most monumental global events of the year. Between June 12 and July 13, 3.4 million people flocked to the stadiums to experience it for themselves. In just 4 weeks, 1 million tourists made their way to Brazil from more than 202 different nations, with a daily average of 485,000 passengers arriving at the host cities' airports – higher than for Christmas or the national Carnival.

In terms of attendance, this was the second biggest football tournament in history. For eight weeks, Brazil experienced three times the usual level of network traffic.

In order to cater for the concentrated mass of users present, service providers invested USD 98 million in mobile telecoms infrastructure, including the installation of close to 5,000 antennas – mostly within stadium areas.

SUMMARY

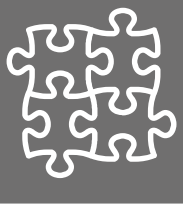
THE CHALLENGE

- Secure a good user experience despite extremely high pressure on the network
- Optimize mobile networks to accommodate three times the average level of traffic, in just two months
- Plan and prepare new solutions in multiple areas to ensure a seamless experience, without impacting the performance of the existing set-up

THE SOLUTION

- A five-stage process of network analysis, optimization, testing, monitoring and compiling a final report
- New and temporary hardware to provide additional coverage and capacity inside and outside the arenas
- Experts proactively managing networks in real time to provide speedy problem resolution and the ability to adjust to the movement of the crowd, covering hotels, transport hubs and entertainment districts

THE RESULT



- 75 percent of users gave very positive feedback on mobile network performance, rating it equal or higher than their daily experience
- Reduced impact on network through shortened emergency recovery time and fewer critical issues
- Improvement in network quality throughout the 12 host cities

"The situation was a big challenge for service providers," says Adriano Monteiro, Customer Support Sales Manager, Ericsson. "It's what we call a data surge – and on top of that the expectation on network performance from a user perspective was very high. In order to deliver, the Brazilian service providers had to ensure consistent Operation and Maintenance processes, good network visibility, and of course timely capacity and resource management."

The event generated a staggering 26.7 TB of data traffic.

Overall the event generated a staggering 26.7 TB of data traffic, equivalent to 48.5 million photo uploads and 4.5 million voice calls. The final match between Germany and Argentina was in a league of its own, creating 1.5 TB of data traffic during just one game – five times higher than the average busy hour traffic. This comes to around 20 MB per spectator and is the equivalent of downloading 1,000 full-length movies.

ERICSSON CONSUMERLAB

The consumer data presented in this report is the result of an Ericsson ConsumerLab study based on 800 interviews in São Paulo and Rio de Janeiro. Interviews were conducted face-to-face at stadium exits and surrounding areas after matches. Those interviewed were Brazilian locals and foreigners aged 15–60 who had watched the matches and carried out digital activities on their smartphones.

IN THE MOMENT

Figure 1: Comparison of Facebook interactions for different events

Source: Ericsson ConsumerLab; www.mashable.com

Consumers have become used to instant gratification when it comes to mobile usage and communication. They no longer have the patience to wait until they get home to share their experiences – they want the ability to communicate and publicize them in the moment.

Breaking social media records

There's no question that the tournament broke most social media records. The final match was the single most talked about sporting event in Facebook history – surpassing the biggest pro American football game in 2013. This can be observed in Figure 1. It also exceeded a famous American film awards ceremony in 2014 and the London 2012 international games.

Figure 2: Social media figures

Source: Ericsson ConsumerLab; www.fortune.com; www.bbc.com

The semi-final was the most discussed sports game ever on Twitter, as evidenced in Figure 2.

Different services for different stages

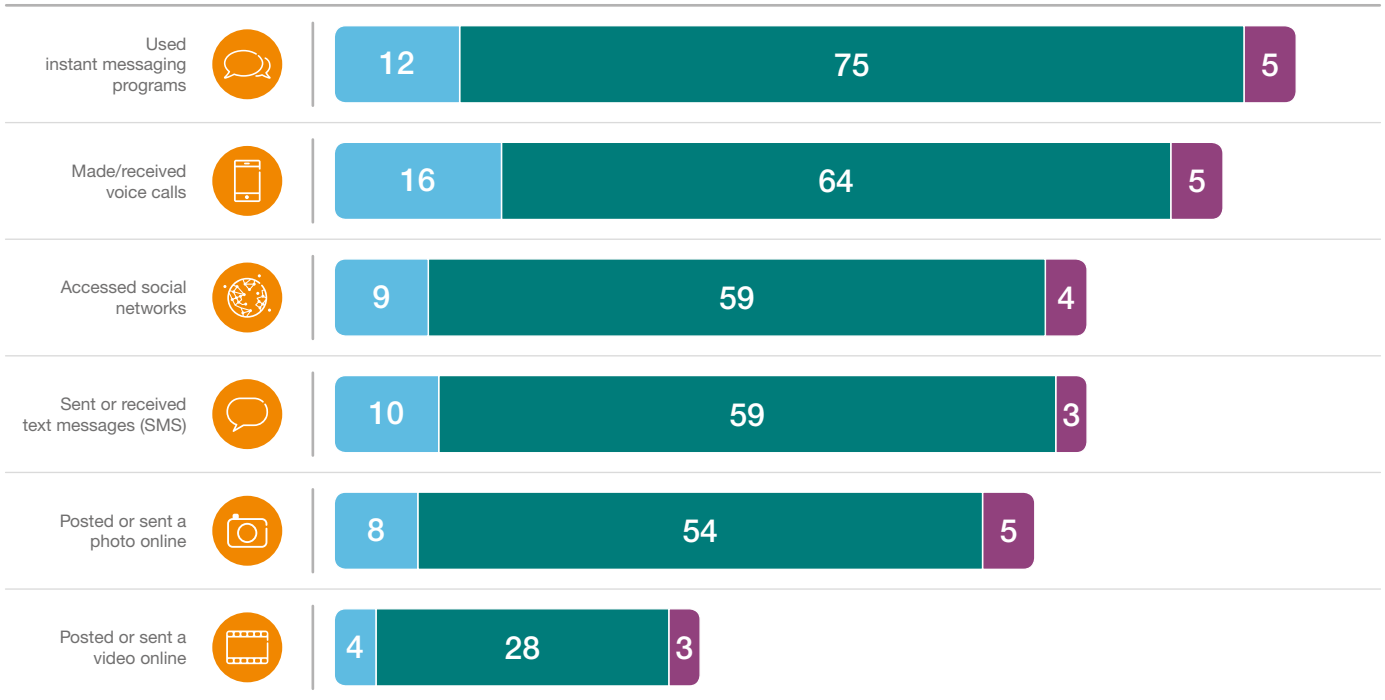
As smartphone usage spiked, a notable trend among attendees was the differing usage between voice and data. Subscribers tended to reduce their voice calls when inside the arena.

Figure 3 on the following page shows the different areas of mobile phone usage that took place before, during and after matches, as well as the frequency of use throughout them. It shows us that during matches, the most commonly used data traffic services were instant messaging and social networks. These services were used more frequently during matches rather than before or after, with a tendency to peak at half time. A significant proportion also posted or sent photos during matches.

Instant messaging was the most commonly used service.

Instant messaging was used most of all, with 69 percent of locals and 48 percent of visitors using it frequently throughout the football tournament. However, visitors were surprisingly more active when it came to posting videos online. As well as posting a higher number of videos, they also posted more regularly throughout matches.

Figure 3: Mobile phone usage during matches (percent)



Source: Ericsson ConsumerLab Football Event Study, Brazil 2014

Before During After

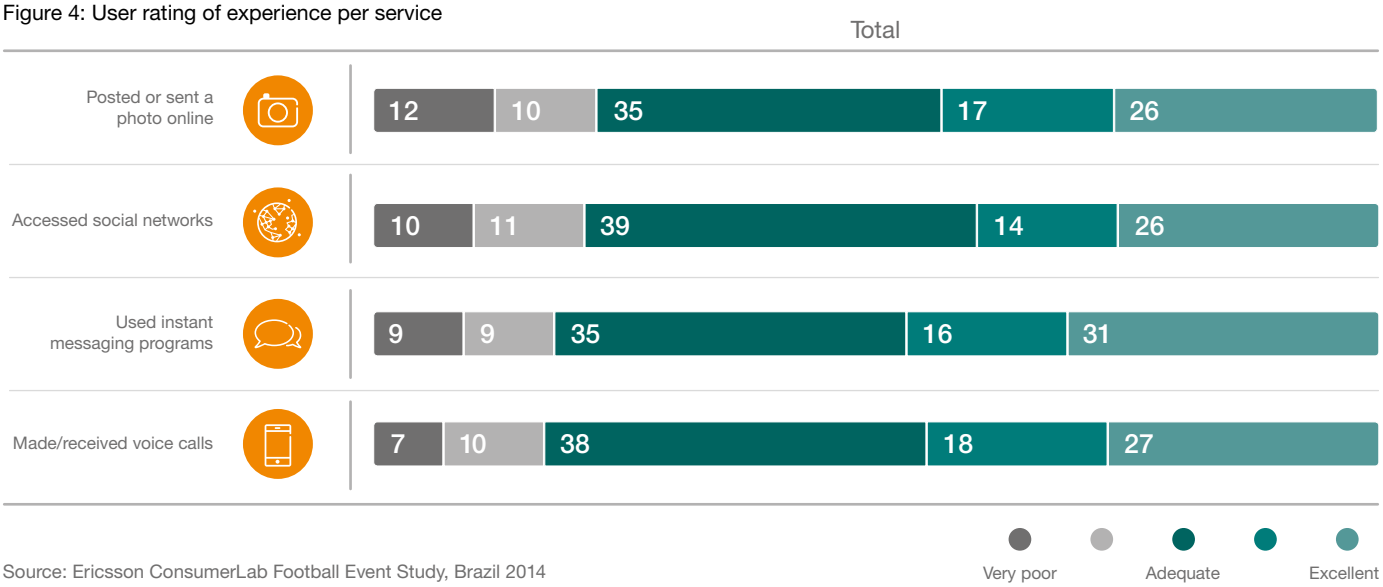
MEASURING THE EXPERIENCE

Attendees of the tournament went to the event with every intention of using their mobile devices to capture or enhance the experience, and were very happy with the service they received. Overall, 3 out of 4 users thought that the mobile phone services they used throughout the event performed as well as, or better than, their everyday level of service. Considering traffic was three times higher than average, this was a highly successful result.

Figure 4 shows the user experience for some of the most used services.

During the matches, 96 percent reported using their mobile phones. However, there were some differences between locals and visitors when it came to the type of connection used. The majority of locals used mobile broadband – 84 percent in all. The corresponding figure for foreigners was an impressive 50 percent.

Figure 4: User rating of experience per service



Source: Ericsson ConsumerLab Football Event Study, Brazil 2014

Differences in behavior were also observed between locals and foreign visitors. For example, locals showed a tendency to use instant messaging and social networks more than international travelers.

Connection type affects usage

In general, users of 4G-enabled smartphones were more active than 3G or Wi-Fi users. Figure 5 shows the proportion of 3G, 4G and Wi-Fi users who carried out different activities before, during or after matches at least once.

4G users were happier with their experience, with over 50 percent claiming they were 'very satisfied' with all services. In almost all areas, 4G users were 15–20 percent more satisfied than 3G and Wi-Fi users.

Significant growth potential

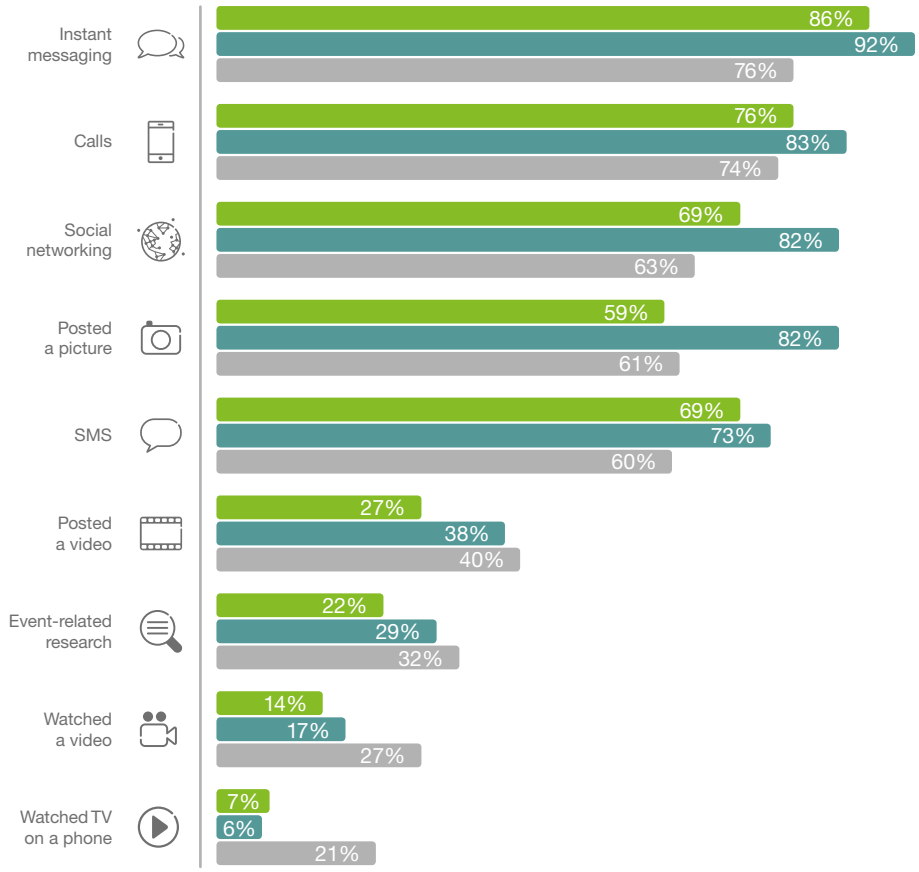
At the opening match, 43 percent of the phones in and around the stadium were smartphones.

Operators in regions with higher smartphone penetration would have likely experienced an even greater level of data traffic. 70 percent of traffic was handled by the 3G network, while 30 percent was 4G. 3G smartphones are currently 4 times more common than 4G models, which equates to 4G subscribers consuming around 71 percent more data than 3G users overall.

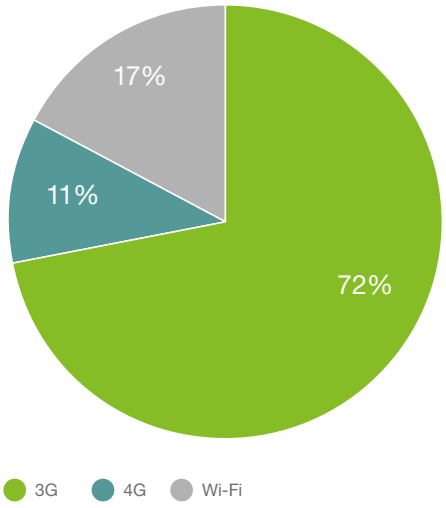
3 out of 4 users rated the performance equal to or better than their everyday experience.

Figure 5: Difference in usage per technology

Proportion of people doing different activities before, during or after the match at least once



Mobile internet used during the matches



4G users were more active using their mobile phones than 3G or Wi-Fi users. 82 percent of 4G users posted pictures while only 61 percent of Wi-Fi users and 59 percent of 3G users did the same. The exceptions were event-related research and video, where a larger number of Wi-Fi users carried out these activities than 3G/4G users.

Source: Ericsson ConsumerLab Football Event Study, Brazil 2014

TEAMING UP WITH OPERATORS

Brazilian operators were faced with the challenge of providing ample capacity and coverage to subscribers in and around the venue to secure a good user experience. The ability to meet this challenge was an important opportunity to strengthen their brand reputation.

Ericsson provided these operators with its Key Event Experience solution for the tournament that included network design, implementation, optimization, real time traffic management and proactive services. The solution helps service providers to design and deliver a high level of network performance, ensuring an optimal user experience as a result. This is combined with thorough preparation carried out in advance of any predicted spikes in network traffic, as well as ensuring the ability to respond rapidly to any sudden and unforeseen network demands and performance degradations.

Project breakdown:

1. NETWORK ANALYSIS

Ericsson carried out capacity checks and was able to identify specific areas that required optimization.

2. CAPACITY EXPANSION AND OPTIMIZATION

The most important preparatory phase in the run up to the event, making sure that all areas of the network were optimized for maximum output.

3. HEALTH CHECK

Ensuring the stability of the network and having all emergency procedures in place, should any faults arise.

4. MONITORING

Checks were carried out 3–4 times per hour to test that the network was performing as it should.

5. FINAL REPORT

A breakdown and analysis of the final figures was provided to the customer.

A multi-phase process

Before and throughout the event, several changes were performed in the network to prepare it for the traffic increase. The results more than exceeded expectations.

> It was a difficult task with a very short timeframe, but we were able to prepare, optimize and monitor the network successfully."
>
> Manuel Sierra, Solution Architect, Ericsson

Each of the main Key Performance Indicators (KPIs) showed improved values for the final match compared to those recorded one year earlier at the Confederations Cup – despite the fact that 79 percent more data was consumed, and that voice traffic increased by 56 percent at the final. These values are demonstrated in Figure 6.

"We've proved beyond doubt that we're capable of overcoming the challenges involved in a project like this," says Manuel Sierra, Solution Architect, Ericsson. "It was a difficult task with a very short timeframe, but we were able to prepare, optimize and monitor the network successfully within the time we were given, as well as adapt ourselves and our processes to meet the needs of our customer."

Meeting performance targets

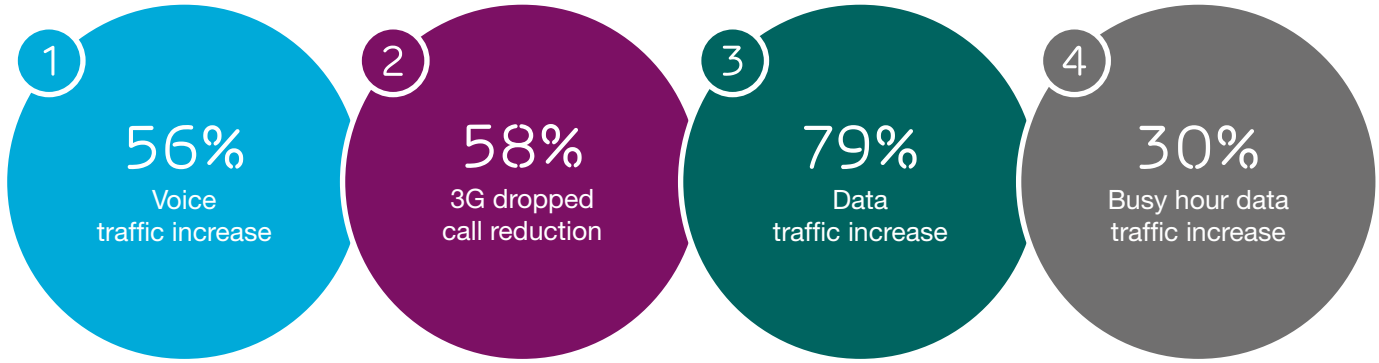
As part of the project, Ericsson optimized approximately 3,000 radio base stations for 2G, 3G and 4G, as well as 60 hot spots along the route at airports, hotels and stadiums. On top of this, Ericsson also monitored the entire installed base, including 790 hand-picked points of interest, such as fan zones.

The design and optimization team performed a dry run prior to the event, including capacity analysis and expansion, network audits, hardware verification and corrections, radio frequency and Distributed Antenna System (DAS) optimization and cell-on-wheel integration.

Ericsson also provided ample support in the area of proactive services. Near real-time network data was processed and analyzed by experts to detect, prioritize and pre-empt network disturbances before they could impact performance.

Over the course of the 18 matches monitored by Ericsson, 4,000 network changes were carried out to adapt the network capacity for traffic demand, which fluctuated throughout. For example, as users entered the stadiums voice traffic would drop, with spikes at half time and at the end of the game.

Figure 6: A comparison of KPIs between the 2014 tournament and a similar large tournament in 2013



Source: Ericsson

Figure 7 shows how voice and data traffic usage varied throughout the course of a game. Compared to voice, data traffic stayed relatively constant.

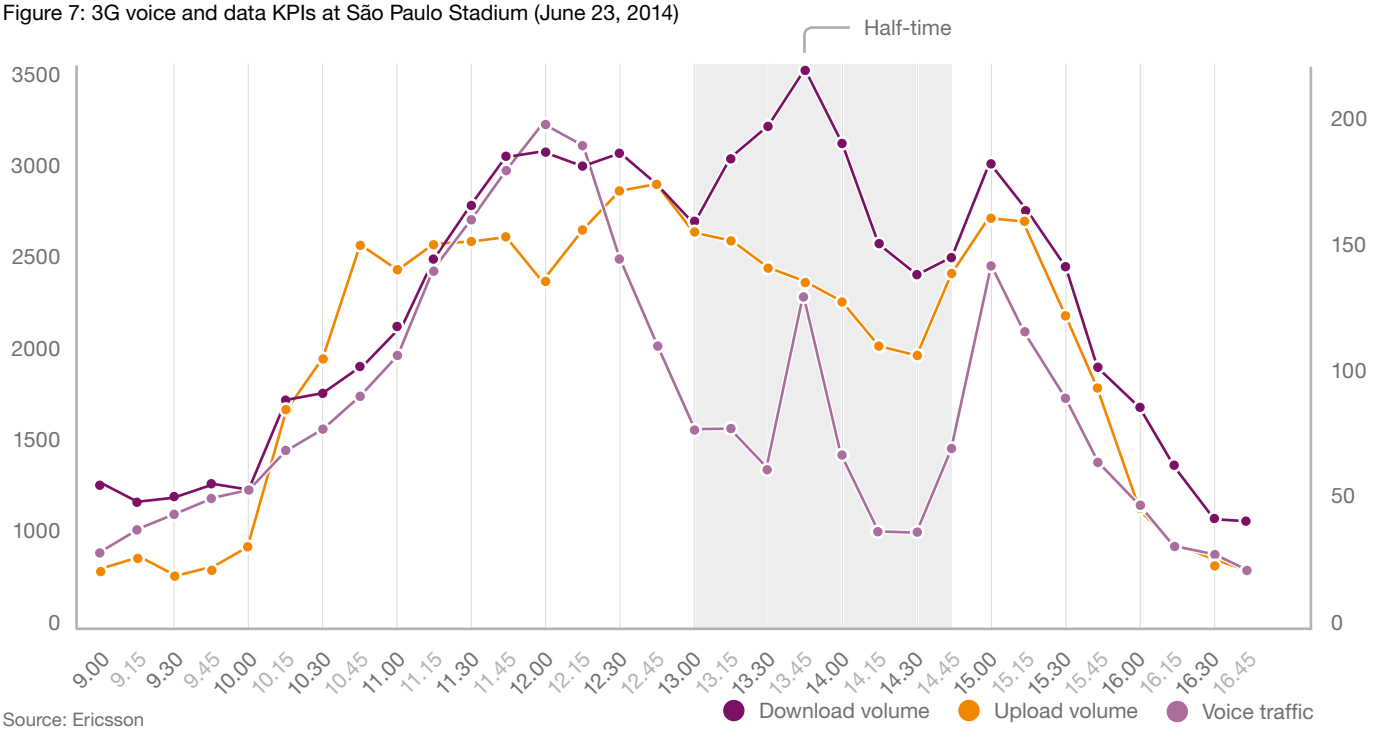
All of the traffic profiling information recorded will provide important lessons for the future utilization of Key Event Experience optimization services. In particular, the increased usage of smartphones and apps confirms the need for a high level of app coverage. Applications must consistently offer sufficient performance in order to deliver a good user experience. New kinds of KPIs on a service or application level should be introduced to better reflect the users' experience.

Quality maintenance

Overall 1,282 monitoring reports were generated and 91 potential issues identified, which meant critical situations could be solved to maintain the quality of the network. Emergency cases were reduced by 35 percent compared to the previous 12 months. The lead time performance to solve critical issues was improved to an average of 37 minutes.

Ericsson helped its customers to improve their network capabilities in order to cater for the rapid surge in data usage. Users were impressed by the performance received, and felt they were able to publish photos and videos at any time.

Figure 7: 3G voice and data KPIs at São Paulo Stadium (June 23, 2014)



Source: Ericsson

SUSTAINABLE IMPROVEMENTS

In all, there is no doubt that mobile networks in Brazil have improved drastically as a result of the 2014 international football championship taking place, especially around arenas. The work carried out from May to July will last long into the future, and people will be able to use the telecom event infrastructure that was created for years to come.

Mobile networks in Brazil have improved drastically since the tournament.

Ericsson supported all major operators during the event. Taking one of the three largest operators as an example, 4G technology was rolled out to all host cities in time for the football tournament.

Rising to the challenge

Tackling an event of such scale was not without its challenges. Very little time was provided between the stadiums being built and the event taking place for the operators to prepare their networks. The passive radio antenna system was shared between all of them, which made optimization and monitoring more difficult. In one case, the Distributed Antenna System (DAS) was up and running just one day before the event began.

The event generated a huge spike in data usage and added substantial load to the network. What was harder to predict was the distribution of traffic, which was likely to vary considerably from the norm – and resulted in traffic turning up in unexpected areas. This required the ability to prioritize operations and maintenance tasks in real time and swiftly address any pain points.

For operators, the project posed both a risk and an opportunity, as any disruption to their service would have had a sizeable negative impact on their brand image, but to succeed would bring great reward in terms of customer satisfaction.

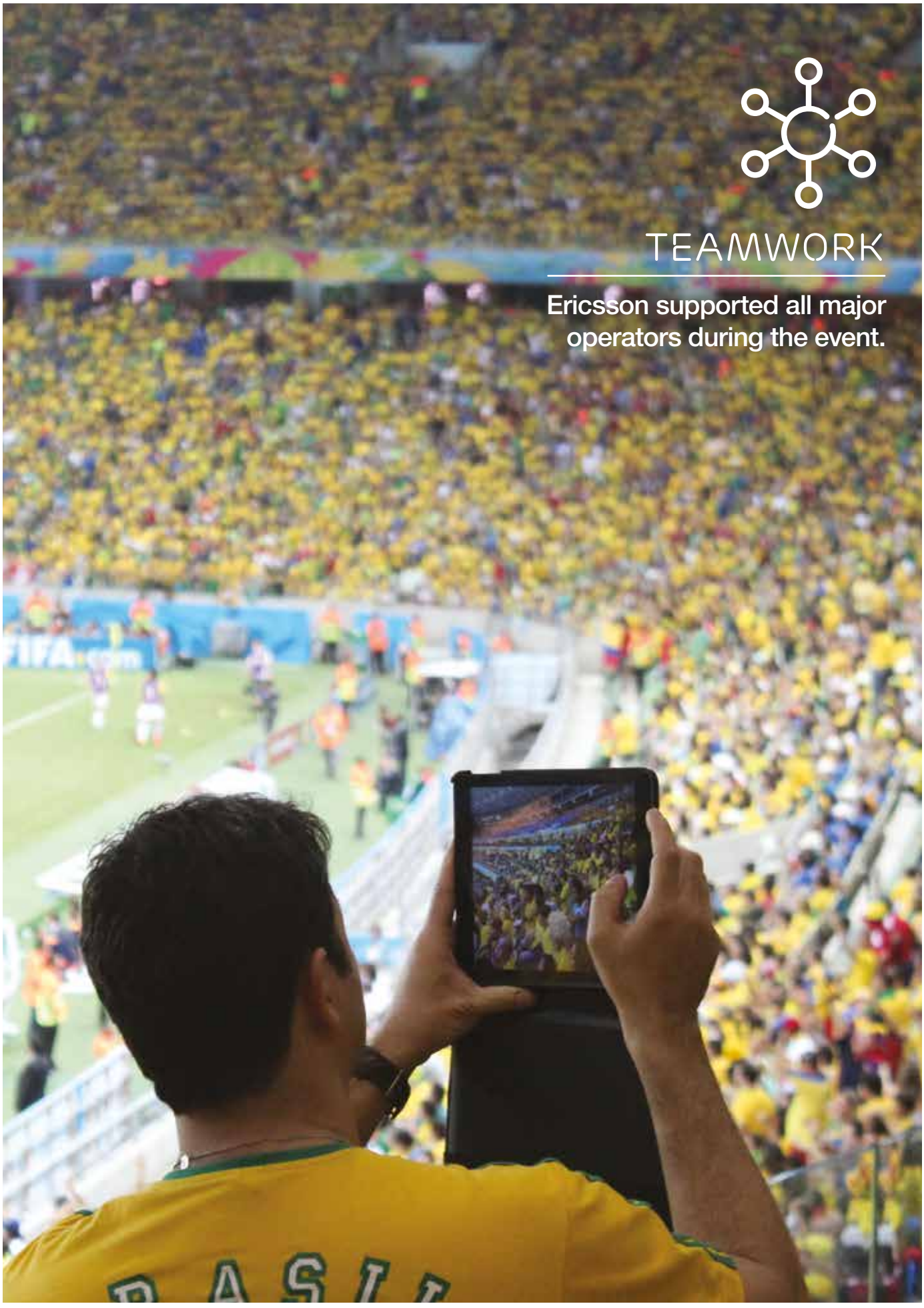
To ensure the latter required working with an experienced partner – one with proven strategies for catering to events of such magnitude.

“There were of course challenges along the way – the sheer scale of traffic, coordinating activities between the different customer areas, and keeping on top of any issues to ensure they were fixed before they caused any real problems,” says Eduardo Zaccur, Proactive Services Technical Coordinator, Ericsson. “But this is nothing we haven’t come up against before – we know the challenges, but we also know how to resolve them.”

Great performance

The operators were very satisfied with the service that they received. With Ericsson’s experience driving the project forward, they were able to overcome the challenges that arose and secure a great performance for customers at this special event.

“My advice to operators seeking support for a large-scale event is to always be prepared for the unexpected,” says Adriano Monteiro. “Surround your operations with a skilled team who work well together, offer high technical expertise, and who have a good understanding of how the process works within the different areas. Accomplish all this, and you will have the best possible chance of bringing a high-quality, uninterrupted experience to your subscribers.”



TEAMWORK

Ericsson supported all major operators during the event.

Ericsson is the driving force behind the Networked Society – a world leader in communications technology and services. Our long-term relationships with every major telecom operator in the world allow people, businesses and societies to fulfill their potential and create a more sustainable future.

Our services, software and infrastructure – especially in mobility, broadband and the cloud – are enabling the telecom industry and other sectors to do better business, increase efficiency, improve the user experience and capture new opportunities.

With more than 110,000 professionals and customers in 180 countries, we combine global scale with technology and services leadership. We support networks that connect more than 2.5 billion subscribers. Forty percent of the world's mobile traffic is carried over Ericsson networks. And our investments in research and development ensure that our solutions – and our customers – stay in front.

Founded in 1876, Ericsson has its headquarters in Stockholm, Sweden. Net sales in 2013 were SEK 227.4 billion (USD 34.9 billion). Ericsson is listed on NASDAQ OMX stock exchange in Stockholm and the NASDAQ in New York.

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