



RECORD DEPLOYMENT OF A CUSTOMIZED MOTOTRBO™ SEAMLESS COMMUNICATION SOLUTION

MUTUAL TRUST & COMMITMENT ALLOWED MOTOROLA SOLUTIONS & OUR CHANNEL PARTNER TO ACHIEVE THE IMPOSSIBLE IN THE MOST CHAOTIC OF TIMES.

"I never imagined we'd be able to complete 24 months of work in 15 months. The client was very impressed with our solution and deployment in such a compressed timeline."

Michael Ho, Founder of C.A. Sheimer

"Under an extreme global equipment shortage, it was a real challenge to get the allocation we needed."

Ivan Chung, Senior Channel Account Manager,
Motorola Solutions

Motorola Solutions and our channel partner C.A. Sheimer have invested years into developing high-trust client relationships. Fully understanding our client's unique set of needs and constraints allowed us to design and deliver the hybrid radio frequency (RF) + wireless 4G solution that ensures seamless communication.

SOLUTION INSIGHT

- PERFORMANCE-ENHANCING SOLUTION
- HYBRID RF-4G DIGITIZATION
- OPTIMAL COVERAGE: PAINSTAKING MAPPING
- CUSTOM FIRMWARE ENHANCES HARDWARE WITH DATA & PERFORMANCE FEATURES
- TRUST IS ESSENTIAL WHEN TIME IS SCARCE
- ONE TEAM



CLIENT NEEDS

In order to increase on-the-job effectiveness, our client saw the need to digitize their analogue radio system. Spare parts for the previous system were becoming obsolete, which made it difficult to maintain and repair equipment. But more importantly, due to Hong Kong's rapid development, high-rise buildings often interfered with radio transmissions, leading to an increase of radio blind spots. This made instantaneous communication between frontline staff using portable radio and district control console operators unreliable. And without digital capabilities, advanced functions such as using Global Positioning System (GPS) to keep track of on-duty staff's locations in real time were lacking.



HYBRID RF-4G PERFORMANCE-ENHANCING SOLUTION

So when this particular client was looking to digitize its system in 2017, the integrated team from Motorola Solutions and C.A. Sheimer spent 2 years in discussions with the client in order to come up with the optimal hybrid, radio frequency (RF) + wireless 4G solution that ensures seamless communication without a single point of failure, using MOTOTRBO Internet Protocol Site Connect to connect a multi-site network of 200 fixed and mobile repeaters.

C.A. Sheimer had been working with this client since 1985, and is a highly trusted end-to-end solutions provider. Over the past 37 years, they have delivered and serviced 3 generations of analogue communications systems, and now the 4th generation hybrid RF-4G solution.

UNIQUE CHALLENGES

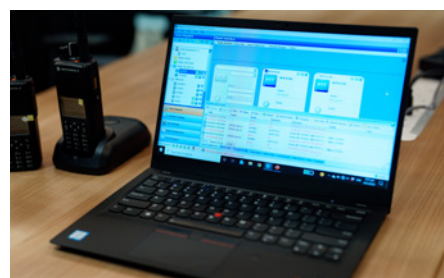
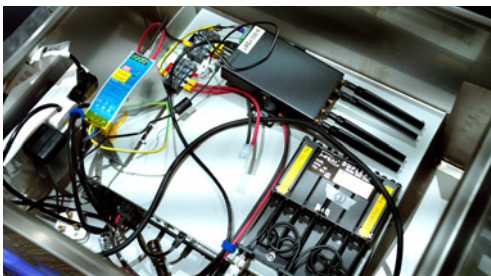
- 19 independently-run districts across Hong Kong, each requires its own system, but with a flexibility to combine district forces running into a single headquarter or three regional headquarters
- Repeaters could only be placed on the rooftop of government properties, which were not ideally situated for optimal coverage
- Due to the Covid-19 global pandemic, there was a 9-month shutdown during a 24-month contract period
- Product sourcing and delivery during a global pandemic with supply chain disruptions

HYBRID RF-4G SOLUTION COMPONENTS

- MOTOTRBO XiR P8668i Digital Portable Radios (with Generic Option Board, spare battery, and earpiece): 2,165 units
- MOTOTRBO System: Internet Protocol Site Connect, TRBOnet Enterprise + TRBOnet Swift Firmware
- Fixed Repeater SLR5300: 178 units
- Mobile Repeater SLR1000: 25 units
- TRBOnet Dispatcher: 25 units



Customized Portable Setup of the Mobile Repeater SLR1000 with a Luggage Case, Battery and 4G Router



OPTIMAL COVERAGE: PAINSTAKING MAPPING

The most challenging aspect of configuring the client's new system had to do with the fact that C.A. Sheimer essentially had to design independent coverage networks for each of the 19 districts, with each district having its own unique set of parameters, such as the number of users, coverage area, the number and locations of blind spots, the number and locations of government properties where repeaters could be placed.

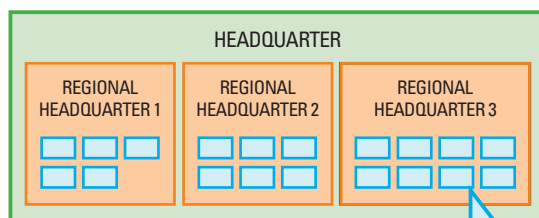
Attaining adequate understanding of each district's needs required the team to survey and meet independently with each district's users. This was the most painstaking and time consuming part of the project. And yet, successful deployment hinged on the detailed and accurate completion of this research.

The first phase of work involved not only site visits to all 19 districts, but also a comprehensive field test using a drone to map out areas of coverage, identifying areas that would then require the use of a mobile repeater station instead of relying on fixed repeaters. Only when the mapping was done, could the process of creating the most resource efficient, wide-area network coverage begin.

But with the pandemic shutdown, the team was not able to conduct site visits to evaluate their best solutions in an efficient way. Yet the final deployment expected to be remained on time. As Michael Ho, founder of C.A. Sheimer explained, this was practically mission impossible, until it wasn't.

OPTIONS TO COMBINE FORCES INTO DIFFERENT SECTORS FOR FLEXIBLE OPERATIONS:

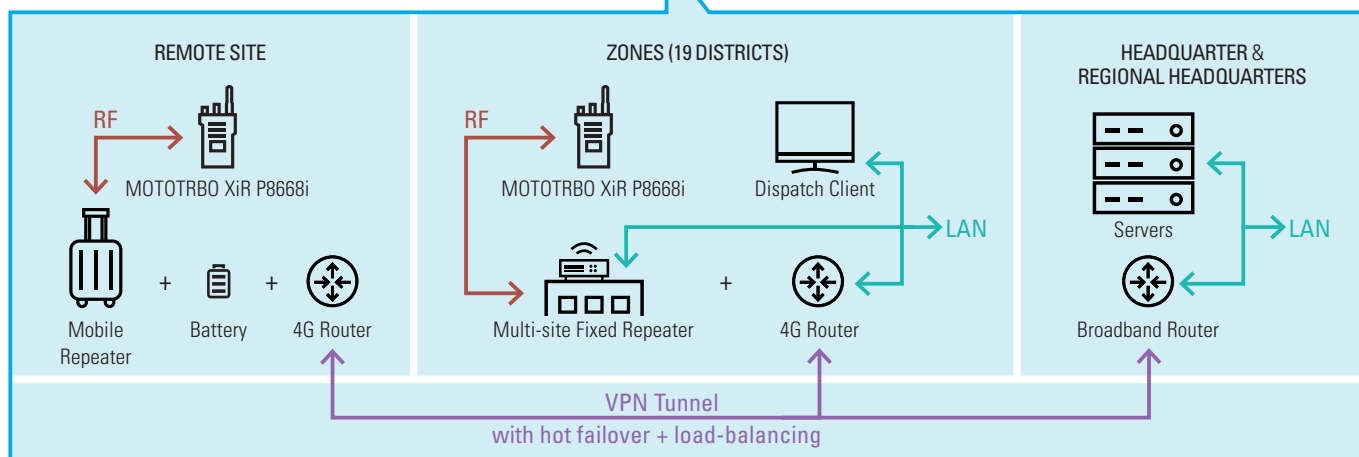
- 1 HEADQUARTER
- 3 REGIONS
- 19 DISTRICTS



CLIENT BENEFITS

Client operating in 19 districts across the whole area of Hong Kong gained:

- Seamless communication with multi-site roaming capability for more comprehensive coverage, improved voice quality and resistance to interference
- Radio Over Internet Protocol (RoIP) technology to enable the connection of multiple radio stations/repeaters and consoles via an IP network in a cost-effective manner
- Secured network for voice and data communications in digital packets
- Good communication quality and high transmission efficiency
- Meet prevailing standards, ensuring compatibility and interoperability among products and greater flexibility for future operational enhancement and development
- Better spectrum efficiency
- Cost effective maintenance service
- "Man down" emergency button to help safeguard personal safety of frontline staff during emergency situations
- Real-time GPS tracking and mapping
- Voice recording

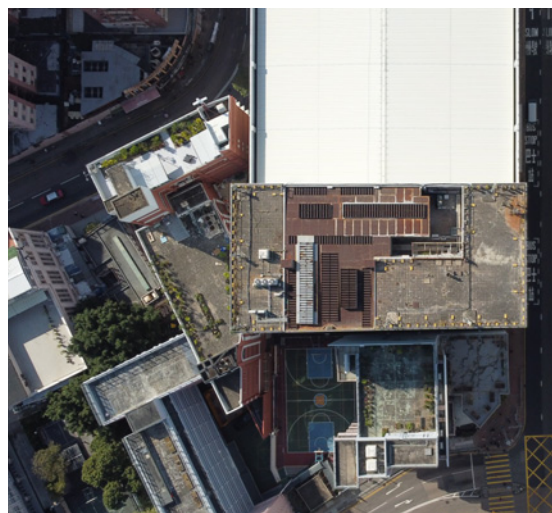


CUSTOM FIRMWARE ENHANCES HARDWARE WITH DATA & PERFORMANCE FEATURES

Since each client's needs and requirements differ, solutions need to be customizable. Real-time GPS tracking and mapping are two important functions that help ensure the effectiveness of this client's frontline staff.

The solution was to add a generic option board to the MOTOTRBO digital portable radio P8668i and then write custom firmware that would allow GPS data to be stored locally. When outside the coverage area, GPS data would continue to be tracked and stored locally. When back in coverage, the stored data would then be transmitted to district control consoles. The new system not only ensures seamless voice communication, a complete record of location data can also be kept.

Other performance enhancing features added include man-down notification, mapping, and voice recording, replacing less accurate hand-written log books.





From left: Philip Leung, Alex Tsui, Michael Ho, Ivan Chung

TRUST IS ESSENTIAL WHEN TIME IS SCARCE

Time was not on our side though. When the contract was awarded in February 2020, it was the beginning of the Covid-19 pandemic. With supply chain disruptions, the team at Motorola Solutions had to overcome global equipment shortages and shipping backlogs to ensure on-time delivery of more than 2,000 units of P8668i portable radios with custom firmware, 178 fixed repeater stations, as well as 25 mobile repeater stations.

In order to meet the client's specialized needs, we had to change a lot of things on the backend. From software, hardware, even to supply chain, all would be fulfilled according to the unique specifications within the tight time frame. Coordination between multiple parties is made easier when there is a depth of understanding and trust in everyone's expertise and work ethic.

Despite a 9-month delay from the city-wide shutdown, the team was determined to complete the seemingly impossible task in record time with only 15 months remaining on the 24-month contract period.

ONE TEAM

In order to successfully design and deploy new systems, channel partners bring a lot more than the ability to sell hardware.

As illustrated in this case, we invest a lot of time building trust and mutual understanding between Motorola Solutions, C.A. Sheimer, and our mutual customers. The integrated team then applies that understanding towards service delivery, with the Hybrid RF-4G Solution.

Most importantly, what this case shows is that the investment in cultivating strong relationships pays dividends in times of crises. After all, clients of Motorola Solutions not only expect reliable equipment, they depend on reliable partners, and where unique solutions is created.

2020

FEB
Tender award announcement

9 months delay due to
COVID

OCT
Deployment of the devices

2022

MAR
Project completion

Entire deployment
completed in 15 months
(original timeline was
24 months)

For more information, please visit motorolasolutions.com



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