STARSOLUTIONS™

Preventing Criminals from Committing Crimes in Prison

Prison forcibly confines and denies a variety of freedoms as a form of punishment to criminals, but has it also become a haven for criminals to organize new crimes through smuggled mobile phones.

In 2014, a North Carolina prison inmate smuggled a mobile phone to keep in touch with kidnappers holding the father of a prosecutor who helped send him away for life. In 2010, it was estimated that 10,000 cell phones were smuggled into California state prisons. Figure 1 shows the 1,800 mobile phones confiscated from 2006 to 2010 at the state prison in Vacaville, California.

Figure 1 Smuggled phones captured in a California state Prison

Star Solutions has been providing mobile communication solutions for nearly 20 years, from analog to digital and from first generation technologies to the current LTE-based 4G. Star Solutions has been involved in both standard based mobile solutions to operators and very-customized solutions to enterprises. In the last three years, Star Solutions has provided prison solutions in many countries to prevent criminals from making illegal calls while allowing legally authorized phones to function normally.

A prison solution requires careful RF planning. The prison site is rigorously surveyed, mobile operator's signal strengths are thoroughly measured, their neighboring cells are determined, and their corresponding signals are measured.

The solution forms a prison mobile network. Prison mobile network signals are thoroughly distributed into prison cells using a Distributed Antenna System (DAS). Signals transmitted via the DAS prevent any possible dead spot being left unmonitored. By using DAS, the prison network is able to operate using relatively low signal emissions. Therefore, it does not interfere with mobile operators outside the prison.

In order to force mobiles to stay within the prison network, wherever policy allows, jamming signals to existing mobile operators are injected into the DAS to block all mobile operator's signals. When jamming is not allowed, the prison solution injects additional signals into the DAS

to appear to be a neighboring cell in the mobile operator's own network. The additional signal strength is much stronger than mobile operators' signals. Once mobiles enter into this neighboring cell, the mobiles are contained in the prison network or re-directed to mobile operator's different channels.

The solution supports concepts of an **Unauthorized List** and an **Authorized List**. An **Unauthorized List** is a list of mobiles that are either banned for calls or monitored for calls. An **Authorized List** is a list of mobiles that are legally authorized to make calls in prison.

When the solution is deployed in cooperation with mobile operators, the prison network communicates with the mobile operators' Home Location Register (HLR) using standard MAP protocol. Based on whether the user is found in the **Authorized List** or **Unauthorized List**, calls are either denied or allowed to complete by the prison network. When not working in cooperation with the mobile operator's network, only the mobiles found in the **Unauthorized List** are contained in the prison network, while mobiles in **Authorized List** are re-directed into mobile operator's different channels.
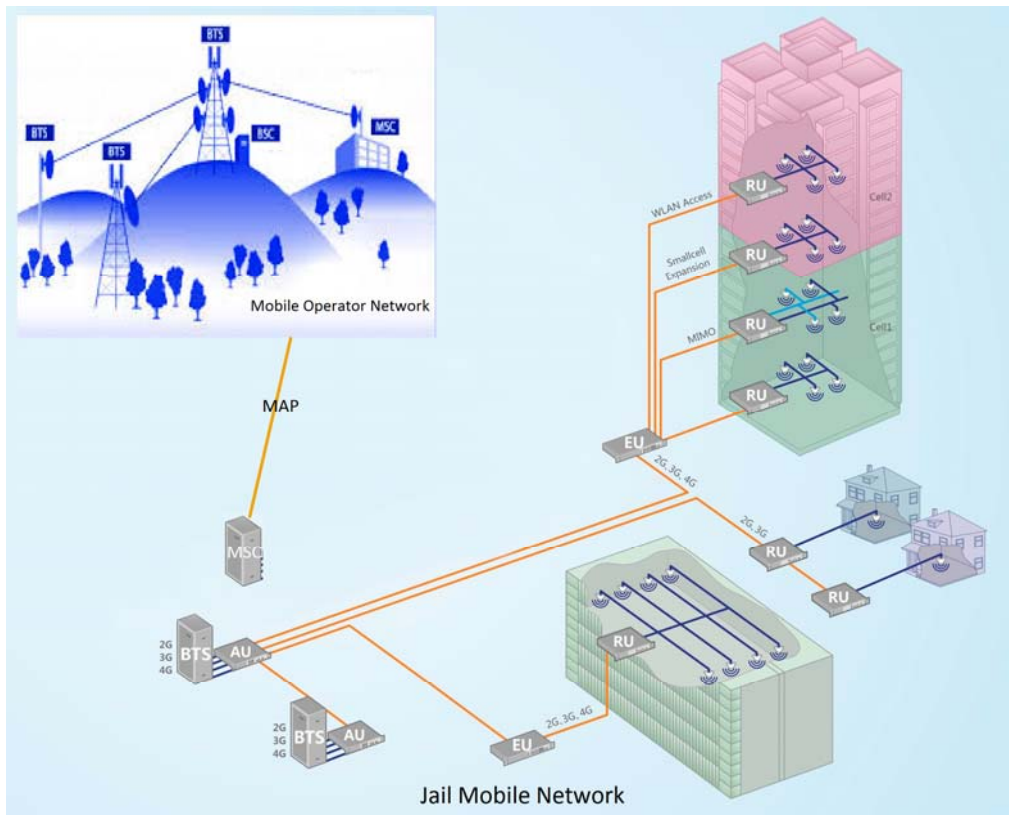

Figure 2: Prison Mobile Network

There are no standard network models for prison solutions, requirements will vary by agency, state and country. Designing such a system requires broad and in-depth mobile network expertise as well as customized enterprise solution experience. Star Solutions has been working in this domain for more than 20 years and has developed and deployed many custom mobile networks to meet the needs of special applications. Not only do we provide unique mobile network for the prison solutions but we also design the best of class solutions to meet any global demand.

About Star Solutions

Star Solutions is a leading supplier of mobile network infrastructure solutions with special focus on Rural/Remote, Enterprise and Rapid Deployment/Disaster Recovery applications. Star Solutions' experience includes rural deployments in over 30 countries; all of the cruise ships world-wide; private Enterprise mobile network for Mines, Oil & Gas and Prisons; Rapid deployment systems for disaster relief, military and emergency public safety communications.

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