

The logo for SWADLOW TAGGING SYSTEMS is presented within a white rectangular box. The word "SWADLOW" is written in a bold, stylized font, with the top half of the letters in grey and the bottom half in red. Below this, the words "TAGGING SYSTEMS" are written in a smaller, grey, sans-serif font, with wide letter spacing.

SWADLOW
TAGGING SYSTEMS

CEP Conference
Netherlands

May 2009

Who are we ?

- ◆ **Derek House**

Chief Operating Officer – SHADOW

- ◆ **Jan Schoeman**

C.E.O. - SHADOW

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SHADOW

T A G G I N G S Y S T E M S

The background of the slide is a dark grey color with a faint, light grey radar grid pattern. The grid consists of concentric circles and radial lines, with a central point. A thin, dark line representing a radar beam or tracking path extends from the center towards the upper right.

Continuous Monitoring And Tracking System

An Alternate “Sentencing” Option

Incarceration Levels

- ◆ Total Current Capacity - 114,559
- ◆ Current Population - 164,957
- ◆ Overcrowded by - 50,398
(And Increasing !)
- ◆ Still “waiting” for impact of Minimum Sentencing ?

Proposed Recipients

- **Low risk prisoners (unaffordable fines)**
+/- 17,000 with fines of up to R1,000
- **Unaffordable Bail Recipients**
+/- 12,000 with Bail set between R100 and R1,000
- **Awaiting Trial (ATD's)**
in excess of 50,000 (and growing) anything from 6 months to 4 years
- **Community Correction (Parolees, Probationers)**
+/- 54,000

Prior Experience

- ◆ Original pilot in 1999
- ◆ Feasibility study in 2004
- ◆ ALL FAILED !
- ◆ NOT because of Tagging itself but -
South African “conditions”

The Problems?

- ◆ Availability of Power
- ◆ Communications
Landlines & GSM
- ◆ “Technology” required NOT available

“Birth” of SHADOW

- ◆ 2003 “we” decided to address problem
- ◆ Technology led solution
- ◆ Many unique and patented features
- ◆ South African designed & created.

Capabilities

- ◆ Continuous monitoring
- ◆ Accurate positioning and reporting
- ◆ Ability to define territories
- ◆ Tamper proof
- ◆ Self contained
- ◆ Small and “comfortable”
- ◆ Intelligent

The “Key” to SHADOW

- ◆ One piece unit
- ◆ NO power needed- no recharging
- ◆ NO dependencies' on “client” comms
- ◆ Automatic switching between GSM and satellite.
- ◆ An “intelligent” anklet

What are we trying to do?

- ◆ Reduce Overcrowding
- ◆ Provide Alternate/Diversification Sentencing Capabilities
- ◆ Reduce incarceration due to Poverty
- ◆ Improve re-integration and rehabilitation
- ◆ Help improve caseload flow
- ◆ Improve existing staff utilisation
- ◆ REDUCE COSTS

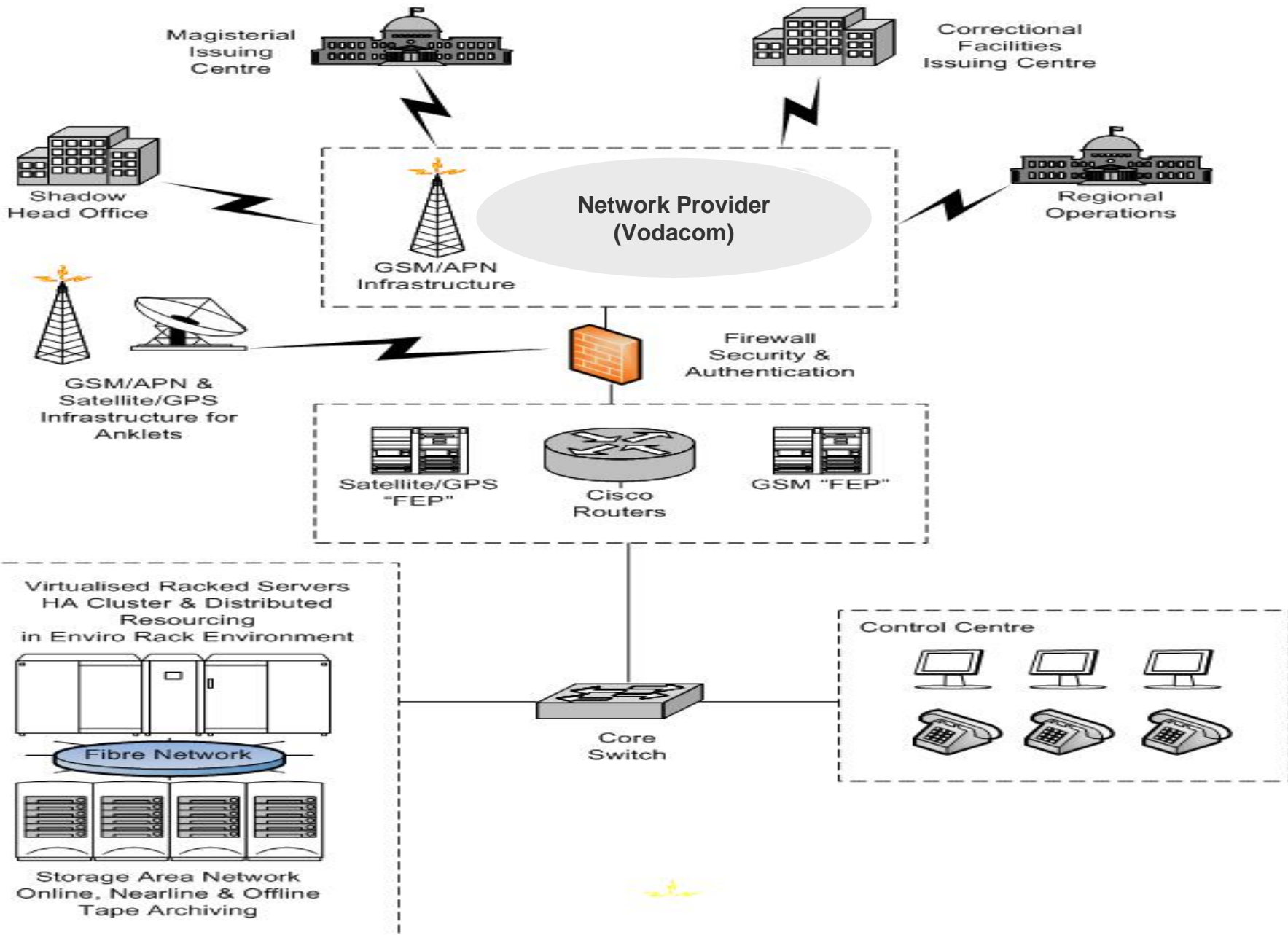
Proposed Recipients

- Low risk prisoners & unaffordable fines
- Awaiting Trial Detainees (ATD's)
 1. Unaffordable Bail
 2. No fixed address
 3. Not contactable
- Community Correction (Parolees, Probationers)

Sometimes Onerous conditions to be met
"Manpower" intensive



Shadow - Central Operations - Configuration





Partnering
for
Success



Recipients?

- ◆ SHADOW have “budgeted” for the number of active tags to be 36,000 after a full one year roll-out
- ◆ Roll-out of 3000 tags per month – recurring
- ◆ Assumed “ongoing” average of 36,000 active tags.
- ◆ NO- logistical limit to the SHADOW system

Solution Components -

- ◆ The Tags themselves
- ◆ Issuing Centre- Hardware & Software
- ◆ Control Centre
- ◆ Monitoring Centre
- ◆ Communications
- ◆ Operational Staff
- ◆ “Tailored” Reporting.
- ◆ Remote access to “authorised” staff
- ◆ Multiple types of notifications

Social Welfare Issues

- ◆ Redress prior “injustices”
- ◆ “Assistance” with Parole applications
- ◆ “Assist” with re-integration
 - Rehabilitation possibilities-
 - Agreement with LOTSHA (an NGO)
 - Education & Skills transfer
- ◆ New Job creation & “security” of current

Cost Considerations

- ◆ Will need a “minimum” Nos of Recipients
- ◆ Needs a Long Term contract
- ◆ “Minimum” period for tagging
- ◆ Refurbishment Considerations

- ◆ “Selection” of desired agency for “breach”

Current Status

- ◆ The ONLY solution that meets S.A. needs
- ◆ The most modern & up to date system available
- ◆ ALL South African
- ◆ Available & Affordable

Provides Solutions
“Eases” workloads
Creates opportunities
Saves money

ANKLET EMBEDDED MODULES

- ◆ GSM Module
- ◆ GPS Module
- ◆ Personal Navigational Module
- ◆ Positioning Module
- ◆ Incapacitation Module
- ◆ Low Frequency Communication Module
- ◆ Health Status Module
- ◆ Tamper Detection Module

MODES OF OPERATION

- ◆ The anklet has various modes of operation to ensure sustainability of battery life over a period of one year. These modes are:
 - Normal operational mode.
 - Health status and tamper alert mode.
 - Pre-alarm mode.
 - Alarm mode.(continuous tracking)
 - Return to “issuing centre” mode.

Normal- Operation Mode

- ◆ During normal-operational mode the anklet monitors its current position through the Personal Navigational Module. In the event that the anklet is close to an exclusion zone or outside an inclusion zone, the “pre-alarm” mode is entered.

Return Mode

- ◆ The return to issuing centre signal can be activated at any time by the central monitoring centre and causes the anklet to vibrate.
- ◆ Any vibration of the anklet should always be interpreted by the person wearing the anklet that he/she needs to return to the centre that issued the anklet to avoid violating his/her parole conditions.

Take-On Mode

- ◆ The Take-On mode is entered when registering a new anklet on the system or whenever the Anklet returns to the issuing centre.
- ◆ During the Take-On mode, communication with the device is established through the Low Frequency Module and allows for a unique ID to be programmed for the Anklet and the registration of exclusion and inclusion zones.

Personal Navigation Module

- ◆ Uses a combination of a three axis accelerometer and embedded compass to determine the position of a recipient from the last GPS update that the system received.
- ◆ Power consumption:
 - AtMega 169 Processor:
 - 3 Axis Accelerometer:
 - 3 Axis embedded compass: 8.7 μ A

Low Frequency Module

- ◆ The Low Frequency Module consists of a 420-450 MHz transceiver module. The main responsibility is to communicate with a satellite base station through time modulated pulses that will enable the anklet to update positioning and health status reports to the control centre in remote areas (no GSM coverage is available).
- ◆ Power consumption:
 - Transceiver:
 - Other peripherals

Health Status Module

- ◆ Although part of the System Kernel processor the Health Status module has the following important tasks to perform:
 - Measures whether the Anklet strap has been tampered with.
 - Determines the battery status and capacity to update the control centre.

Current Pilot Project

- ◆ Hatfield Community Court
- ◆ Up to 100 Recipients
- ◆ Issuing for 6 months
- ◆ Additional monitoring for a further 6 months
- ◆ “Concurrent” with S.A. Government plans.

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SHADOW

T A G G I N G S Y S T E M S

The background features a dark grey globe with a white grid of latitude and longitude lines. A camera tripod is positioned in the center, with its legs extending outwards. The text is centered over the globe.

See You ALL at the
FIFA
WORLD CUP
2010

Thank you !