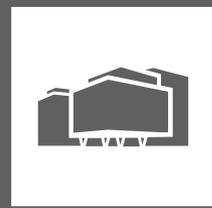


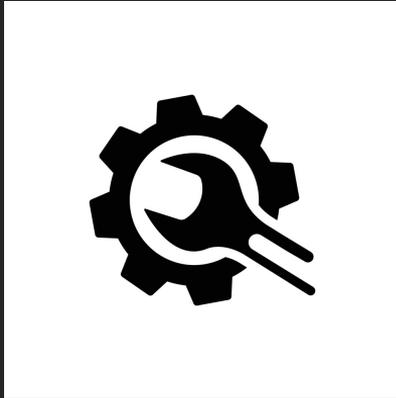
I will never design bad WiFi at ITRIS One
I will never design bad WiFi at ITRIS One
I will never design bad WiFi at ITRIS One
I will never design bad WiFi at ITRIS One
I will never design bad WiFi at ITRIS One
I will never design bad WiFi at ITRIS One
I will never design bad WiFi at ITRIS One
I will never design bad WiFi at ITRIS One
I will never design bad WiFi at ITRIS One
I will never design bad WiFi at ITRIS One



Location Tracking in Gesundheitseinrichtungen

- Cédric Metzger, ITRIS One AG





Part 1: Technische Umsetzung



Part 2: Real-World Usecases

Was ist Location Tracking?

- Location Tracking ist ein Marketingbegriff
- Bestimmung der Position eines Assets
- Über verschiedene Protokolle möglich (WLAN, Bluetooth, LoRa)
- Das Asset kann mit einem Tag zur Lokalisierung ausgestattet werden

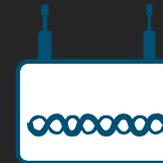
→ WLAN, Cisco Spaces/DNAC



Lokalisierung über RSSI

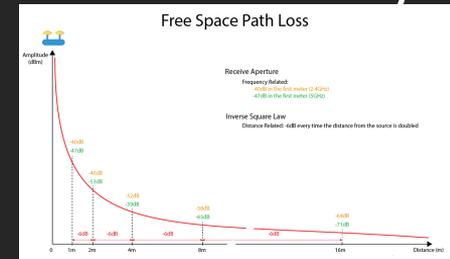


-65dBm = 10m



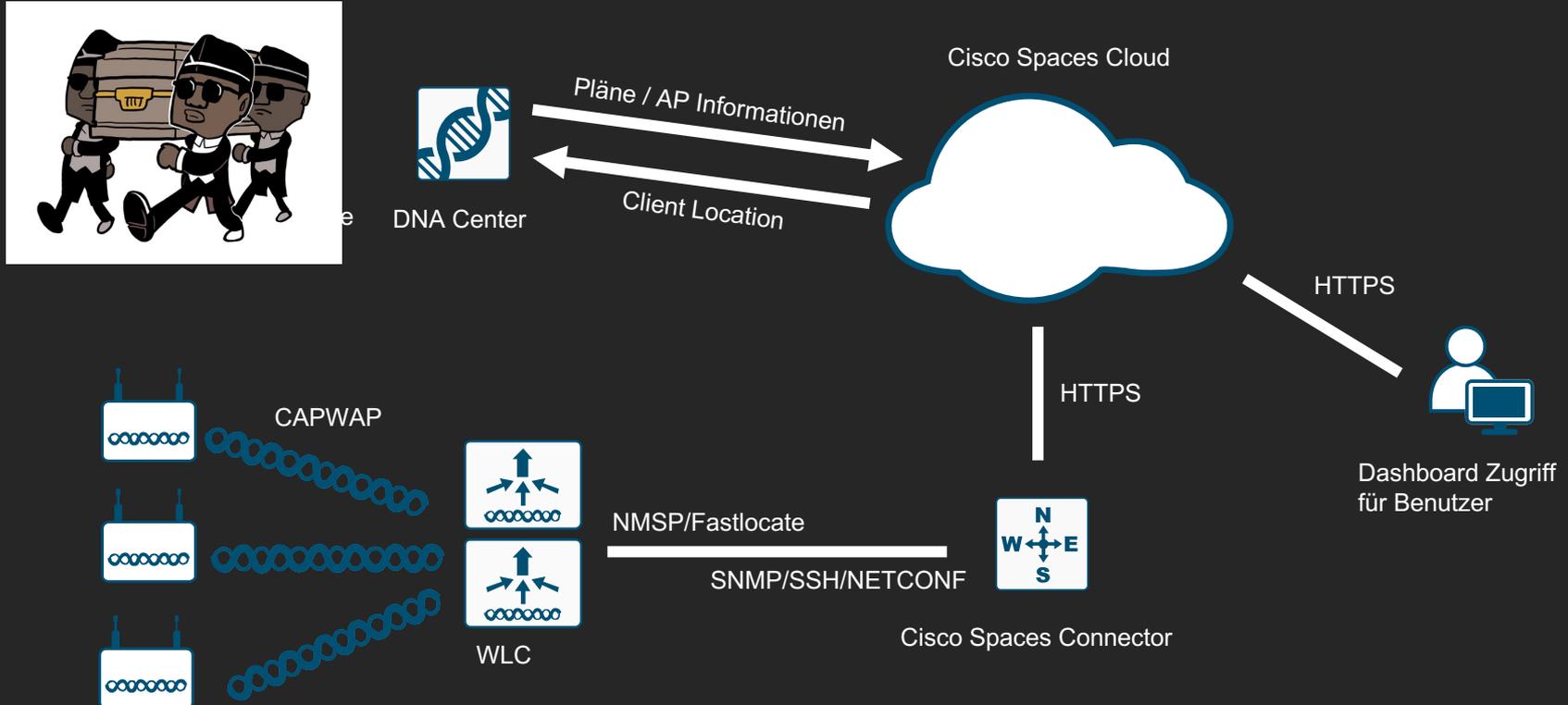
-72dBm = 25m

- TXPower?
- Winkel?
- Imperfektion Antenna Pattern?
- WLAN Design?
- Channel?



Quelle: <https://seanp.com/blog/free-space-path-loss-diagrams/>

RSSI Werte korrelieren



Cisco Spaces – Detect and Locate

Cisco Spaces | Detect and Locate

DETECT AND LOCATE

Dashboard

Deployment Information

Configure

Accuracy Report

Notifications

User Management

RELATED LINKS

Map Services

Location Hierarchy

84 Clients 76 Tags 8

0 BLE Tags 0 Rogue APs 0 Rogue Clients 0 Interferers

Search Devices

Filter Devices

Legend Refresh Map Refreshed at 11:54:49 AM

Floor ID: 27c62fb2-8fc9-4516-8866-1cbb30605c1a
Floor Map Source: RICH_MAPDNAC

x: 134.68 y: 226.38

The screenshot shows the Cisco Spaces 'Detect and Locate' interface. On the left is a navigation menu with options like Dashboard, Deployment Information, Configure, Accuracy Report, Notifications, and User Management. The main area displays client statistics: 81 Clients (75 green, 6 red), 17 Tags, and 0 BLE Tags. Below this is a toolbar with various icons. On the right, the 'Overview' tab is active, showing device details for a specific device. The details include MAC Address (00:00:7b:4c:9c:19), Status (ASSOCIATED), Coordinates (X: 53.5, Y: 282.3), Device Location (visualized as a bar chart), Compute Type (RSSI), Last Seen (May 1st, 2023 01:58:20 PM), Manufacturer (---HASHED---), Connected AP Base Radio Mac (6c:8d:77:f6:7d:60), Connected AP Name (usw633-08043), Detecting Controller (10.48.5.15, 10.48.5.22, 10.48.5.14), SSID (redacted), Max RSSI Detected (-40 dBm), Max RSSI AP MAC (6c:8d:77:a0:19:20), Username (---HASHED---), Band (2.4 GHz), Bytes Sent (25.3 KB), Bytes Received (82.43 KB), and Source (COMPUTE). Three red arrows point to the MAC Address, Last Seen, and Username fields, highlighting that these sensitive data points are anonymized.

- Sensitive Daten können anonymisiert werden
- Sehr viele Informationen in der Cloud – Unbedingt mit den entsprechenden Stellen prüfen
- CMX ist onprem

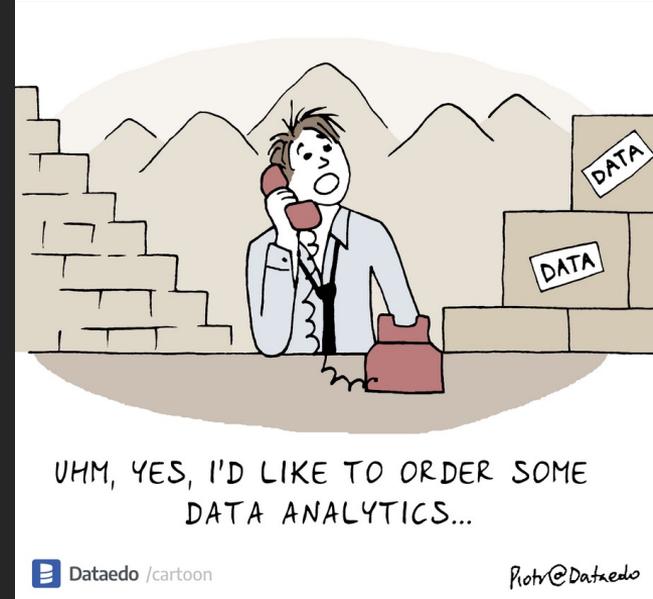
Nutze die Macht!

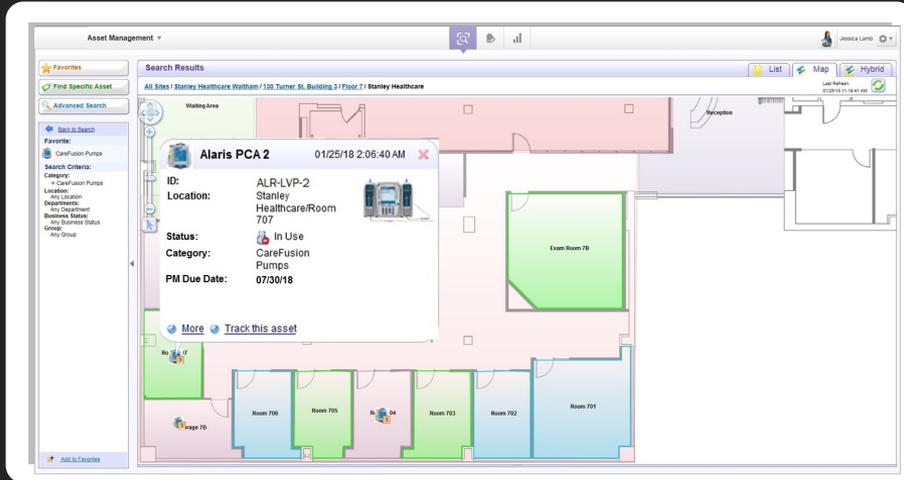
Usecases mit Positionsdaten

- Par Level
- Out of Zone / In Zone
- Position bei Notrufauslösung

Wie?

- Securitas MobileView





STANLEY Staff Visibility
Healthcare

Home | Search | Notifications | Analytics | User: Fard Bakli

Filter: All Staff | Search

Results 1 - 4 of 4 | Updated: 02/12/19 3:35:16 PM

Alerts	Tag ID ↑	Battery Level	Last Transmission	Last Tested	Tag Model	Staff Categories	Name	Location	Status	Protected
	000CCC541274		05/09/18 7:50:35 PM		T2s	Physicians - Outpatient	James Swift	Clinic Building 3/Floor 6/OR/OR1		
	000CCC852167		25/01/16 8:42:09 PM			Physicians - Outpatient	Deborah Miles	Clinic Building 3/Floor 6/OR/OR1	Having a Conversation	
	000CCC854712		25/01/16 8:40:51 PM			Nurses - Outpatient	Jim Clarke	Clinic Building 3/Floor 6/OR/OR3		
	000CCC963251		25/01/16 8:41:32 PM			Nurses - Outpatient	Becky Griffin	Clinic Building 3/Floor 6/OR/PreOp		

Probleme beim Tracking von WLAN Clients:

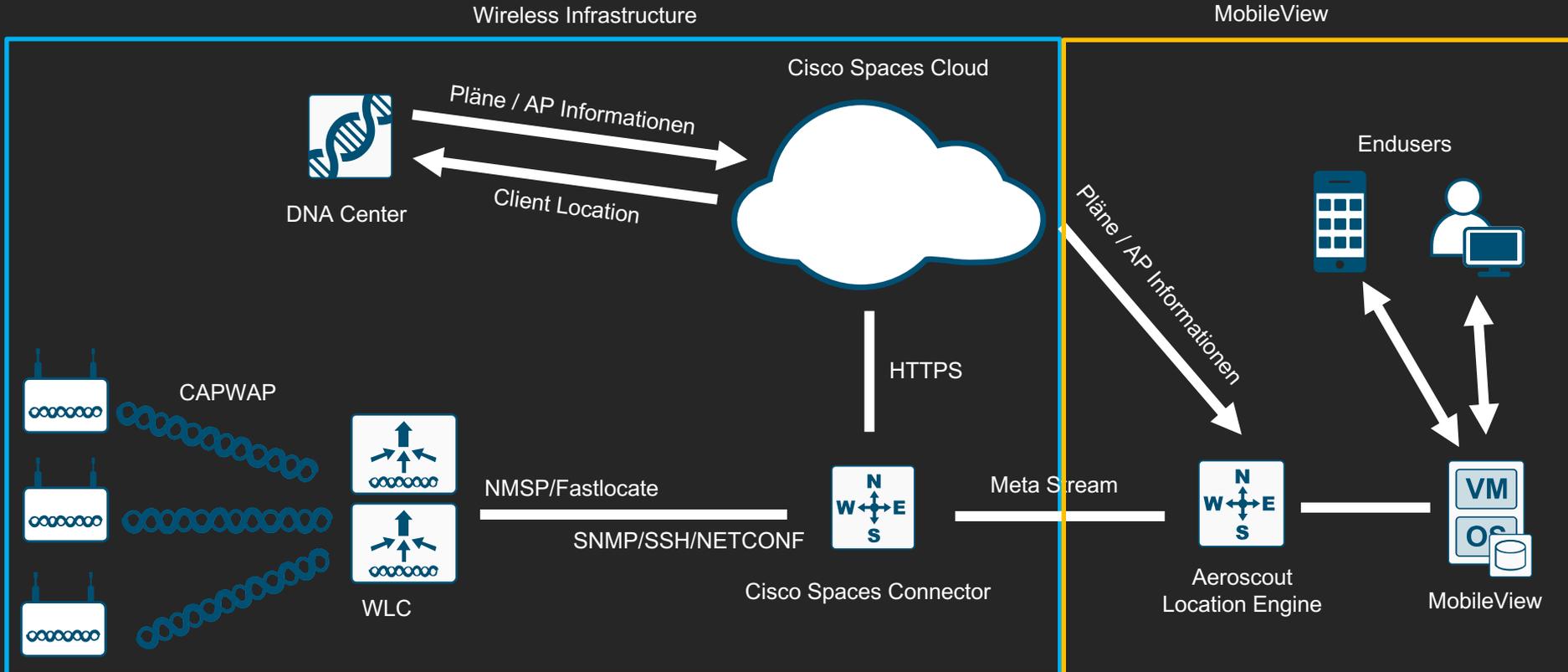
- Standby
- Batterielaufzeit
- Optimierung/Kalibrierung
- Implementation “Rufknopf”

Funktionsweise:

- Fortlaufende Beacons in 10' bis 30" Intervall
- Passiv: Sendet lediglich auf 2.4Ghz Channels
- Batterielaufzeit ~2 Jahre



Cisco Spaces und MobileView



Part 2: Real-World Usecases



Real-World Usecase: Patientenruf

- Schweizer Spital
- 1'000 Mitarbeiter
- 6'000 Austritte / Jahr
- WLAN Ausbau für Location Tracking: 500 APs
- Delir Unit





- Jeder Patient wird mit einem Tag ausgestattet
- Für Patienten ohne Beeinträchtigung auf freiwilliger Basis
- Integration KIS > MobileView
- Integration MobileView > Lichtruf

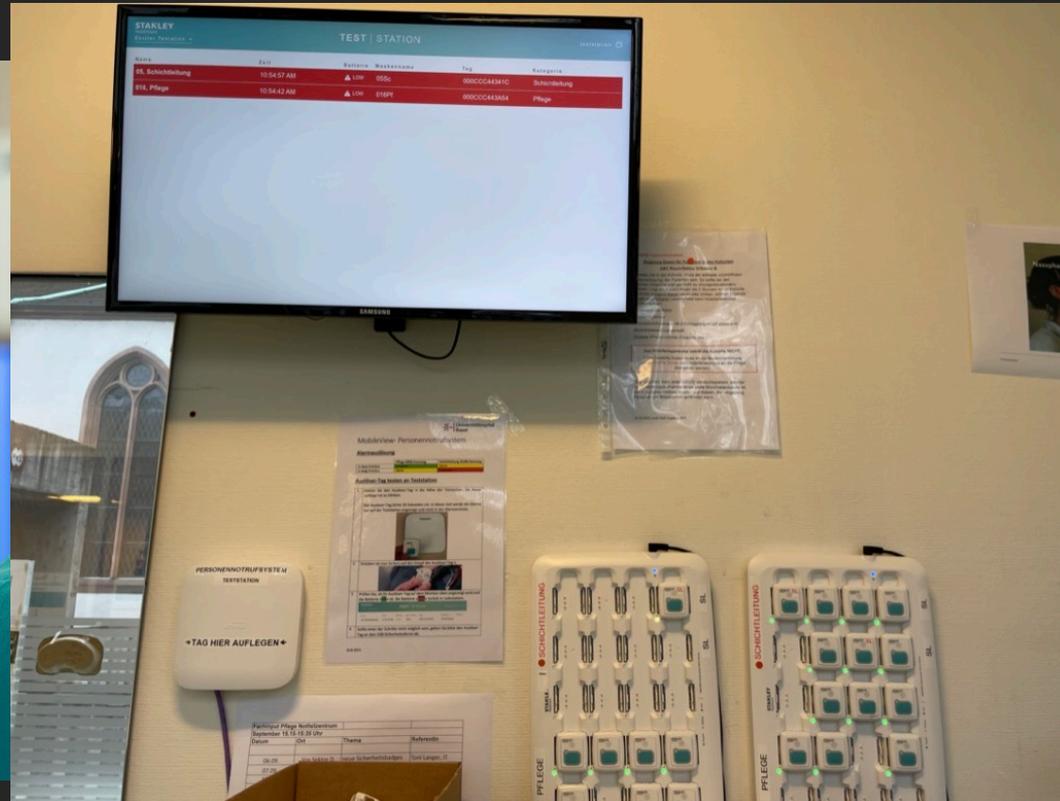
Real-World Usecase: Personennotruf

- Schweizer Spital
- 8'000 Mitarbeiter
- 800 Betten, 50'000 Austritte pro Jahr
- 10'000 Notfälle / Jahr, davon 500 per Helikopter
- WLAN Ausbau für Location Tracking: 6'000 APs

- Über 6'000 Sicherheitsvorfälle / Jahr
 - 300 / Jahr mit Polizeiaufgebot



Real-World Usecase: Personennotruf



- Teststation
- Alarm/Eskalation
- Benachrichtigung
 - Alarmzentrale
 - Mobiler Einsatzdienst
- Rapportierung für jeden Alarm mit Begründung für Aufgebot der Polizei

Real-World Usecase: Transportanlage



- Transport von Wäsche, Verbrauchsmaterial und Essen
- Statusanpassung bei Erreichung des “Bahnhofs”
- Nachverfolgung der Route bei Verlust

Real-World Usecase: Rollstühle und Pumpen



- Rollstühle, Pumpen, Therapiegeräte
- Statusanpassung bei lokalisierung in der Zentrale
- Schnelle Erkennung von “Clustern”

BESUCHEN SIE UNS



www.linkedin.com/company/itrisone

www.facebook.com/itrisone



one.itris.ch



cmetzger@itris.ch