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Ekahau RTLS Solutions for Mining

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Location Tracking in Mining

1. Asset Tracking

- Production equipment – scoops, tractors, drills, etc.
- Transport equipment
- Tools (compressors, etc.)

2. Staff tracking

- Safety in hazardous work areas (blasting, excavation, etc.)
- Work-flow
- Regulatory compliance
- Time and attendance

3. Inventory tracking

- Raw materials transport
- Explosives/chemicals/fuel
- Spares
- Maintenance equipment

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Mining Use Cases

- **Locate and track production vehicles**
  - Increase utilization of these assets
  - Drive productivity of operations
  - Address maintenance and fleet management
- **Tracking Staff**
  - Increase Safety and Security in “man-down”, vehicle accidents or disaster situations
  - Improve work-flow by being able to better direct operations
- **Other:**
  - Improve general asset maintenance and availability
  - Manage HVAC systems based on location of activity

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$ Benefits of Tracking in Mines

- **Productivity gains:**
  - Real-time production reporting can enable addressing operations issues in real-time keeping production volumes at peak levels
  - Increased vehicle utilization correlates directly to increased production
- **Safety:**
  - Incident prevention and improved response times shorten shut-down cycles
  - Safety systems can lower insurance costs
- **Other:**
  - Real-time management of HVAC systems can lower utility bills by tens of percentage points annually.
  - General asset utilization improvements can cut down the number of leased assets.

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Sample ROI

Increasing utilization of Scoops:

- 50 Scoops underground carry ore to the crusher and for further processing
- Each trip is worth $1000 in ore
- Each scoop averages 4 trips per hour
- 3 shifts per day – 8 hour shifts
- An hour is spent on average locating the scoops during shift changes as they can be at different levels, tunnels, fingers etc. in the mine.

What if we could add one trip per shift ?

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Sample ROI

Adding a trip per shift:

1 trip/shift x 3 shifts = 3 trips/day/scoop

3 Trips/day x 50 Scoops = 150 trips/day

$1000/trip x 150 trips= $150,000 per day

360 days/year x $150K/day ~ $54 million/yr.

RTLS System cost: less than $100K

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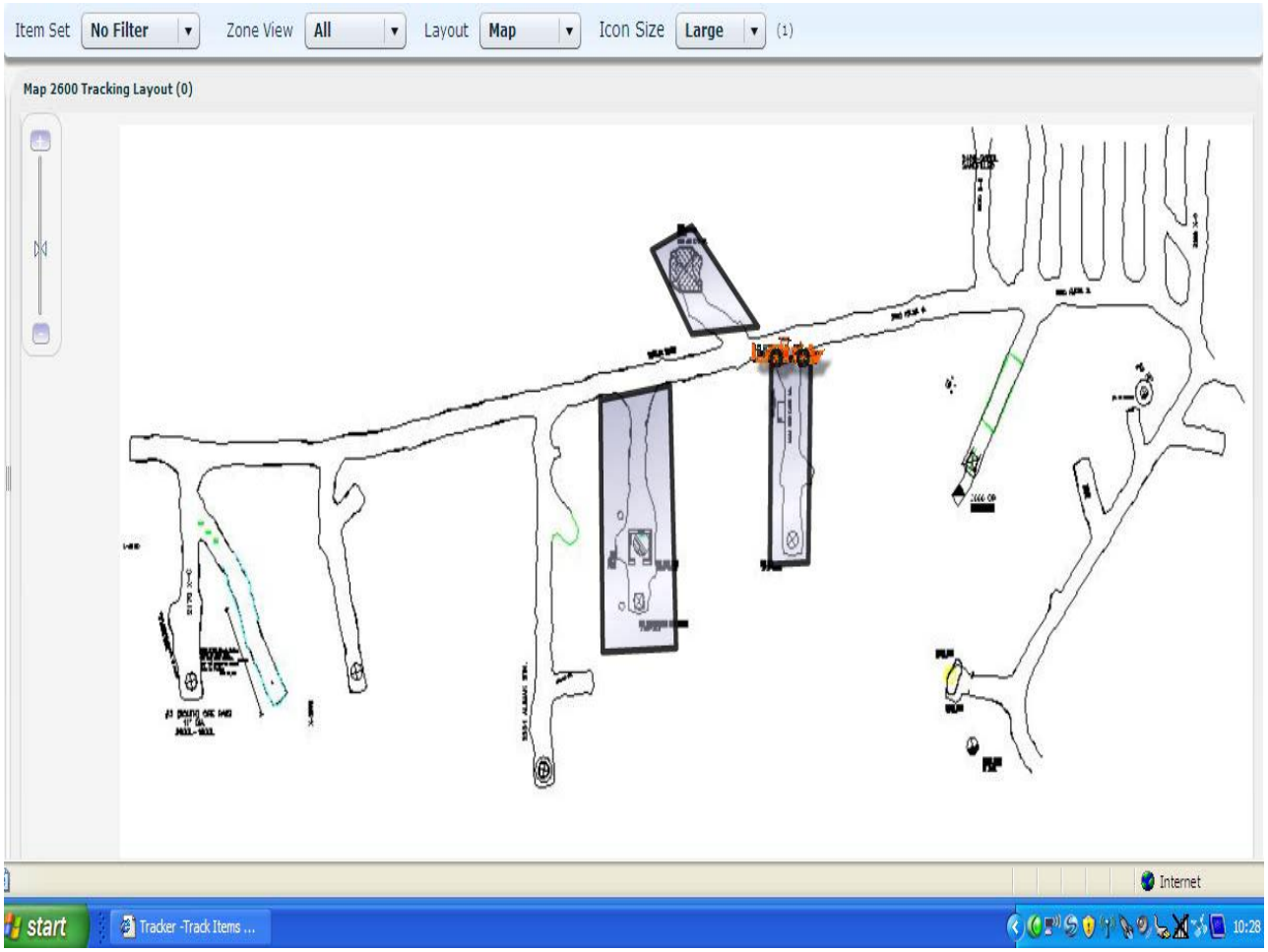
Sample ROI – Measuring Trips



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The Ekahau RTLS System

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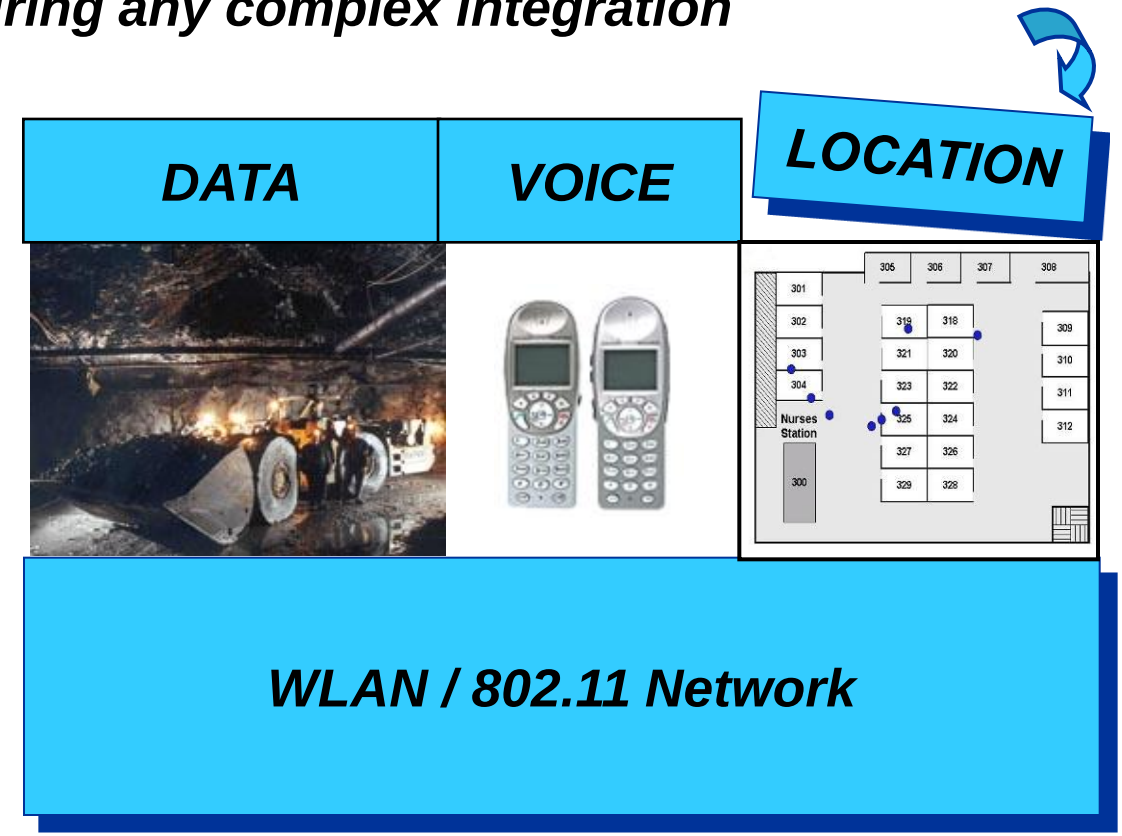
WiFi Building Blocks –> ”Whereware”

Ekahau adds location tracking to any standard WLAN network ***without adding any proprietary hardware or requiring any complex integration***



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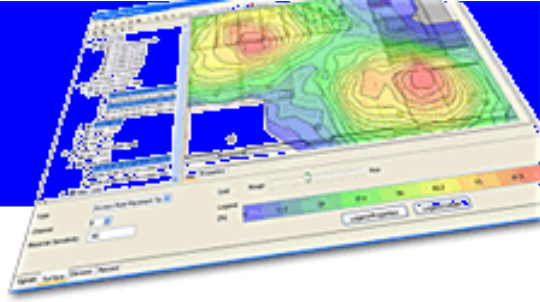
Ekahau – Products



Ekahau RTLS

• A complete WIFI-based Real Time Location System for tracking the location and status of assets, inventory and people.
• Application suite coupled with WiFi Tags forms a disruptive solution to active RFID and other active tagging systems
• Includes open SDK for quick application integration

•Ekahau Site Survey

• The most comprehensive site survey tool for Wi-Fi network visualization and optimization
• Includes off-site WiFi Planner, Reporting Tool and GPS option for outdoor surveys

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RFID or RTLS ?

Passive RFID

- Short read range
- Equivalent to “barcode on steroids”
- More data than barcode, easily readable, writable inexpensive
- Standardized (EPC Global)
- Primarily an **identification** resource

Active RFID

- Proprietary and used for location only
- No industry standards
- Various frequencies, tags and vendors resulting in totally incompatible systems
- Varying levels of performance, scalability and accuracy

WIFI RTLS

- Real-time enterprise-wide location tracking
- Differing algorithms between vendors

Two options:

- WIFI -based that leverage Wi-Fi infrastructure without the need for proprietary overlay hardware or networks
- Proprietary overlay networks or appliances over vendor-specific networks

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Why does WIFI RTLS make sense ?

- Regardless of the type of location tracking technology being used, a data back bone (WIFI or Ethernet) network is needed:
  - For transmitting tag data or information from locating infrastructure
  - To support end-user wireless terminal access to tracking applications
- WIFI provides a multi-use infrastructure:
  - Data
  - Voice
  - Telemetry
  - RTLS
  - Etc.
- **WIFI RTLS systems do not cause interference or abuse network resources.**
- WIFI is standards based, has extensive market presence and is approved for use in many places like hospitals , on airplanes, in power plants, mines,on the manufacturing floor, etc.
- WIFI RTLS can serve mining companies both under and above ground

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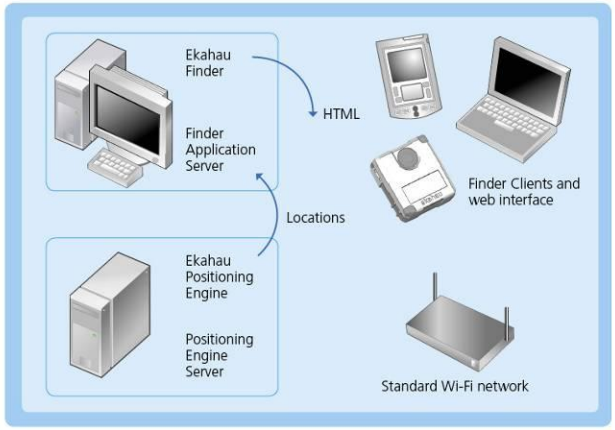
Ekahau RTLS

- **Ekahau T-series WIFI Tags**
  - Up to 5+ year battery, 2-way communication, tamper proof, audible and visible alarming, 2-way paging
- **Ekahau Client** – “software tag”
  - Track computers, VoWIFI, PDAs, barcode/RFID readers with software client
- **Ekahau Positioning Engine**- <u>patented & accurate</u> location server and algorithms:
  - 802.11 A/B/G location tracking for up to 1-3 meter resolution.
  - Centralized or distributed support
  - Scalable to tens of thousands of tags
  - Associated Mode and Beaconing Mode
- **Ekahau Finder/Tracker** - enterprise application suites
  - Web-based, real-time, enterprise-wide visibility with full alerting, status, Ekahau Zones, rules and reporting capabilities.
- **Ekahau APIs**
  - XML, Java, Socket-based and SQL options for integration with clinical applications



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Thank you !

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