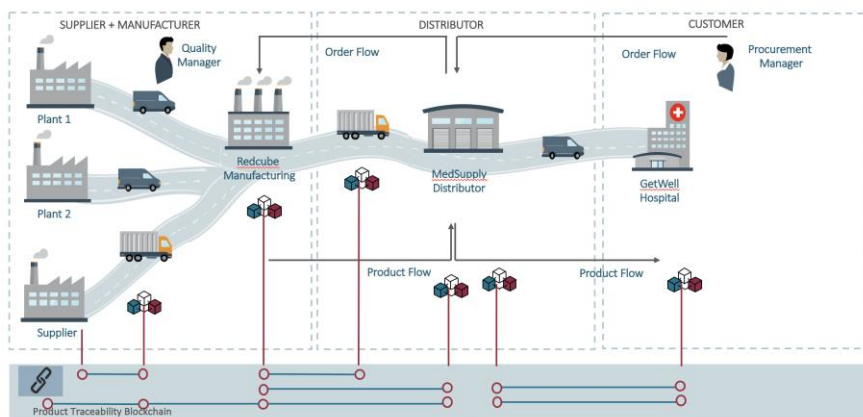


Product Traceability & Recall (PTR) with Blockchain & IoT

Hospitals are seeing a surge in hi-tech medical devices for patient care and hospital operations. However, this surge also brings numerous device management challenges. Checking for authenticity, provenance, compliance, performance, troubleshooting, and recall handling - are some of the common challenges that hospitals have to address. In addition, many things could go wrong during supply chain that impact device performance and patient safety.

Oracle's Product Traceability & Recall (PTR) is an elegant solution that addresses above challenges. Hospitals (and manufacturers) can now easily track and gain visibility about device quality, compliance, product journey, authenticity, performance and recall related information.

PTR is 100% cloud-based solution that brings together the power of IoT, blockchain and Supply Chain Management cloud services. The solution showcases how to plug the visibility leaks and have end-to-end transparency across the product lifecycle, including the supply chain.



Key Features

- Device Authenticity & Provenance Transparency
- Device Location & Performance
- Product Journey Tracking
- Recall Traceability

Key Business Benefits

- Better transparency of place of origin, authenticity, and provenance of devices and components. This reduces risk and improves compliance management
- Real-time location of device, predictive maintenance and easier troubleshooting. This helps with minimizing lost productivity and improves patient experience
- Detect and track supply chain incidents and anomalies with fine-grained detail. Improves transparency, mitigates risk, and unexpected surprises with devices. It also helps to reduce tampering and counterfeits creeping in.
- In case of recall, pinpoint the root cause, identify affected devices and mitigate the impact on business operations and brand reputation.

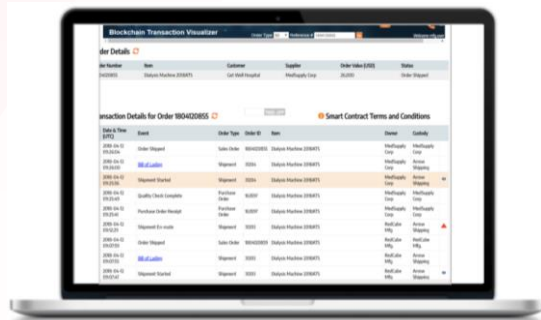
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DEVICE AUTHENTICITY & PROVENANCE TRANSPARENCY

Issues like counterfeited components, incorrect country of origin, incorrect supply chain handling can wreak havoc on device and patient safety. In addition, tracking change of ownership and change of custody is important for liability management. Until now, these issues are handled mostly through manual coordination, or traditional BPM processes at best. Neither are effective enough.

Oracle PTR solution showcases how IoT and blockchain can help simplify tracking, management and process automation for authenticity and provenance tracking. This reduces risk, improves patient safety and simplifies compliance.

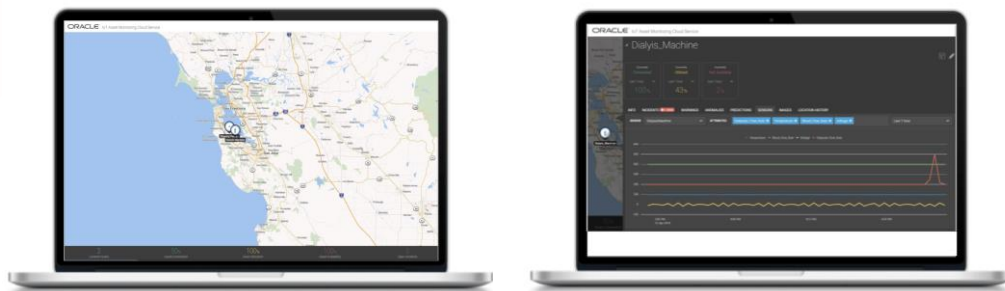
In this solution, IoT tracks various aspects of the device, sourced components, and device journey in supply chain; while blockchain acts as the shared, verified, trusted, common system-of-record that captures the entire string of events for future verification and process automation. Together, they provide visibility and transparency for all the participants of the ecosystem to fight the risks.



TRACK DEVICE LOCATION AND PERFORMANCE IN REAL-TIME

Hospitals and care providers spend considerable time locating and managing devices. The problem is even more exacerbated for ambulatory devices.

PTR solution showcases how IoT Asset Monitoring provides real-time location and predictive maintenance of medical devices. This prevents costly downtime, lost productivity, and revenue loss; while improving patient care metrics.

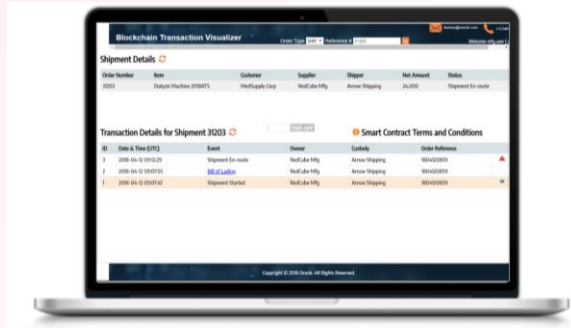


PINPOINT SUPPLY CHAIN ANOMALIES WITH JOURNEY TRACKING

Medical devices tend to have sensitive and fragile components. This warrants careful handling during logistics and shipment. In addition, supply chains also introduce the risk of theft, device tampering and

counterfeits.

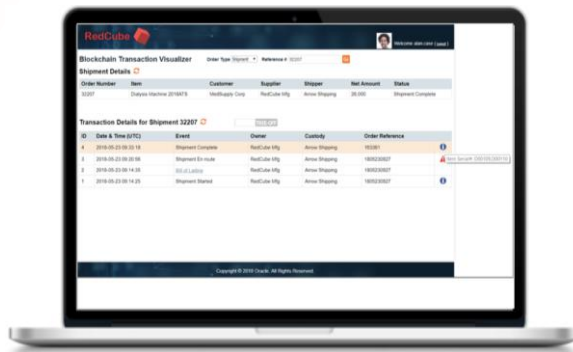
PTR solution showcases how IoT and blockchain can help to track and pinpoint any anomalies and 'events of interest' during shipment. They capture a tamper-proof trail of events, that simplifies root-cause analysis and auditing. Such capabilities are helpful for situations like product recall and claims adjudication.



TRUSTED DIGITAL TRAIL FOR QUICK RECALL TRACEABILITY

For many products incidents during manufacturing are trackable, but incidents during supply chain go undetected. Such incidents could impact product quality, performance and safety. Due to lack of information on accurate root cause, manufacturers end up recalling the devices.

PTR solution showcases how this technology makes fine-grained tracking of various supply chain incidents feasible and facilitate better recall traceability.



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