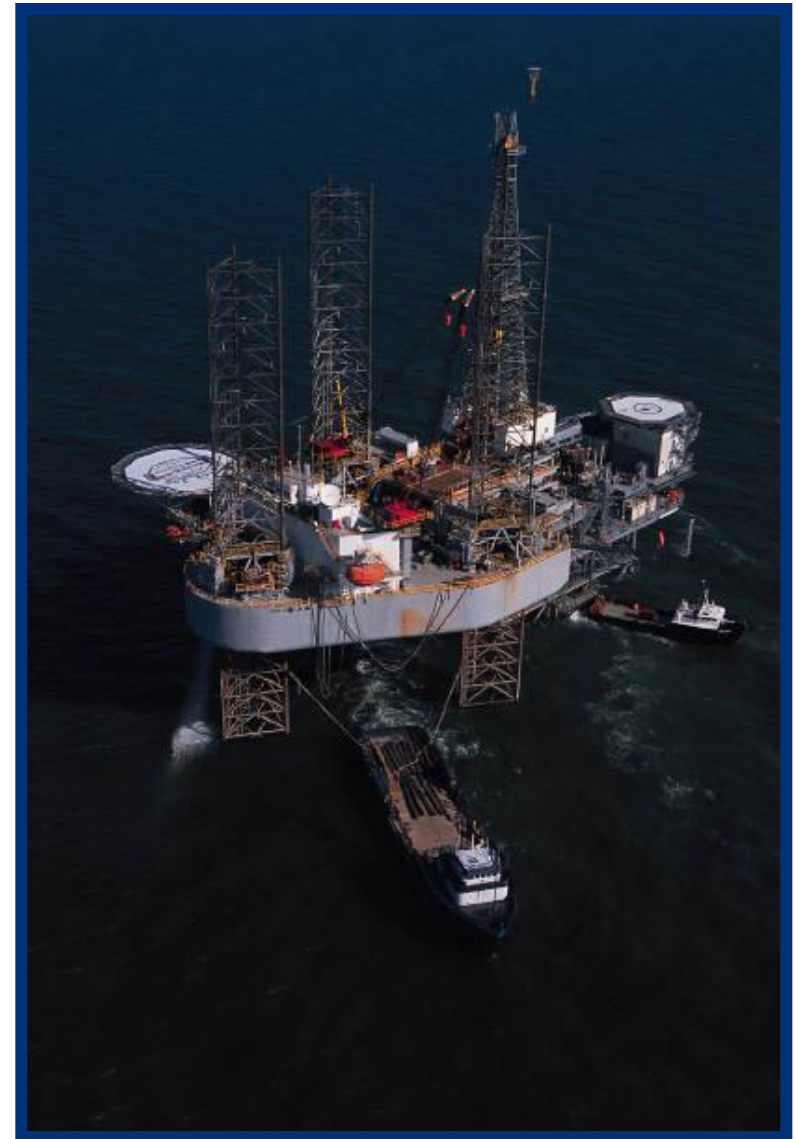


# Gas & Oil Application Presentation

2007



- Industry overview
- Industry trends
- Applications
- System requirements
- Success stories

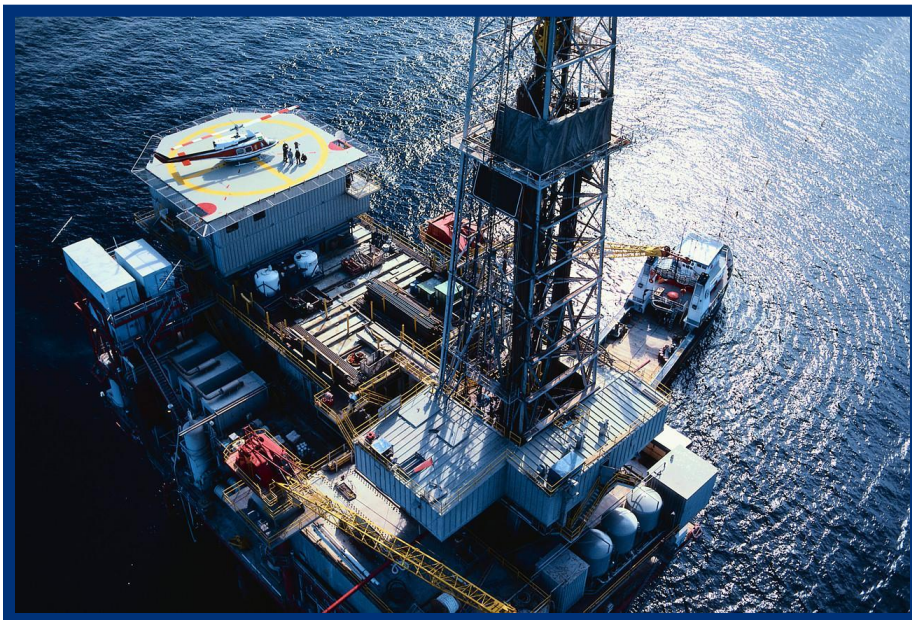




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## Industry Overview

- **Industry size of \$1.9 trillion**
  - (Feb 07, IEA-International Energy Agency)
- **IEA - the need for Gas & Oil will increase in 60% over the next 20 years.**
  - population growth, technology widen
- **Industry has global geographical spread.**
  - **Asia, Africa, Americas, Australia, East/West Europe**





2

## Industry Trends

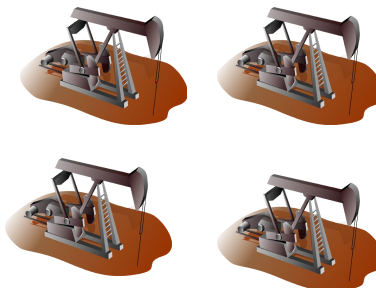
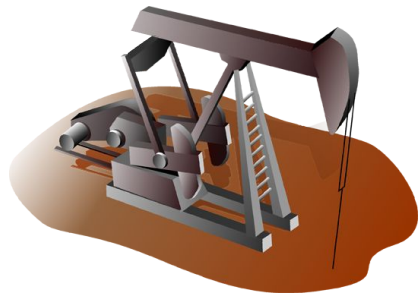
## Digital Oil Field



Digital oil field projects require large quantities of data to be communicated

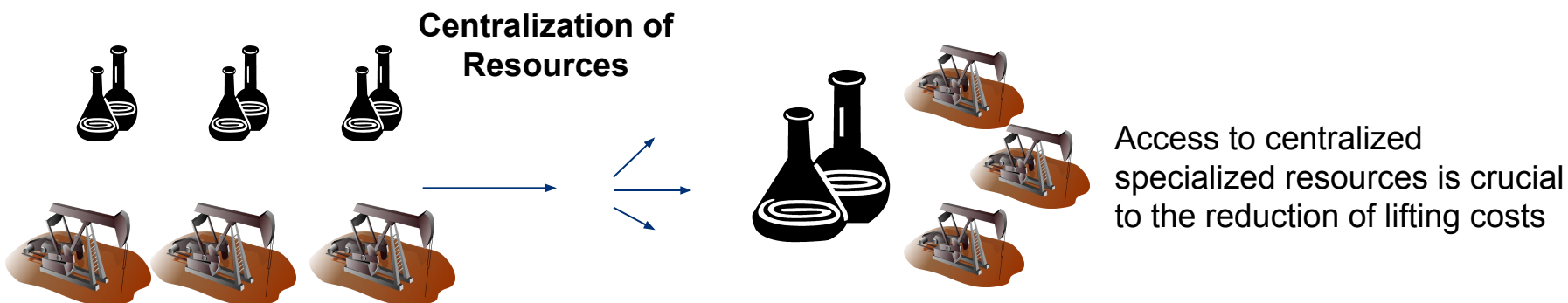
- **Previously only narrowband communications were needed**
  - Data sampled only infrequently
  - Only a few Kb of data
- **The digital oil field vision requires**
  - Real time access to data
  - Large volumes of data
  - Minimal latency

## Depletion of Reservoirs



With many small wells to monitor, effective communications and control systems are imperative

- Larger reservoirs are being depleted in many regions, and are replaced by smaller, numerous, and often remote wells.
- Broadband wireless access solutions enable cost-effective operations of a large number of smaller, dispersed and remote assets.



- **Oil and Gas companies are centralizing analytic, engineering and scientific resources to become more efficient.**
- **Scientists and engineers located in remote corporate offices require real-time data, voice and video communications to be effective.**



3

# Applications

- **Potential deployments**

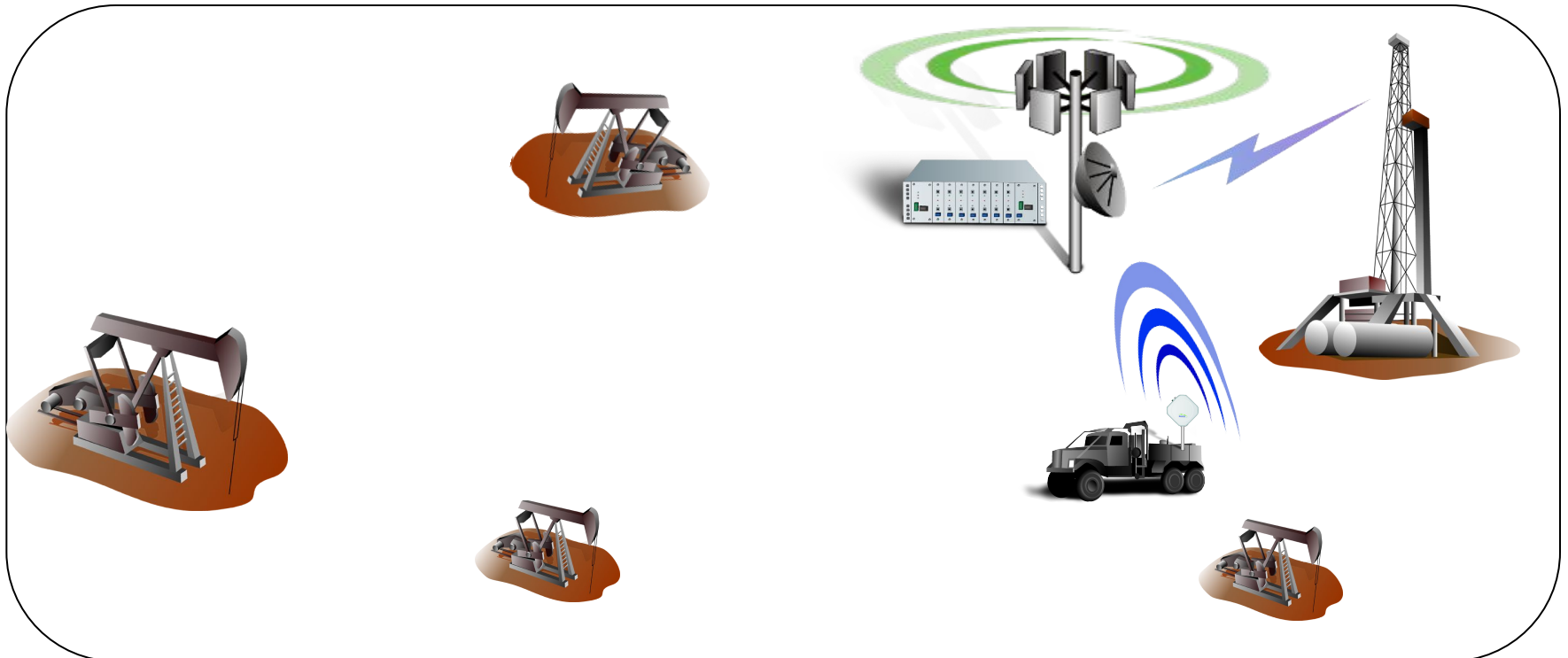
- In vehicle access, especially in large land based oil fields

- **Potential applications**

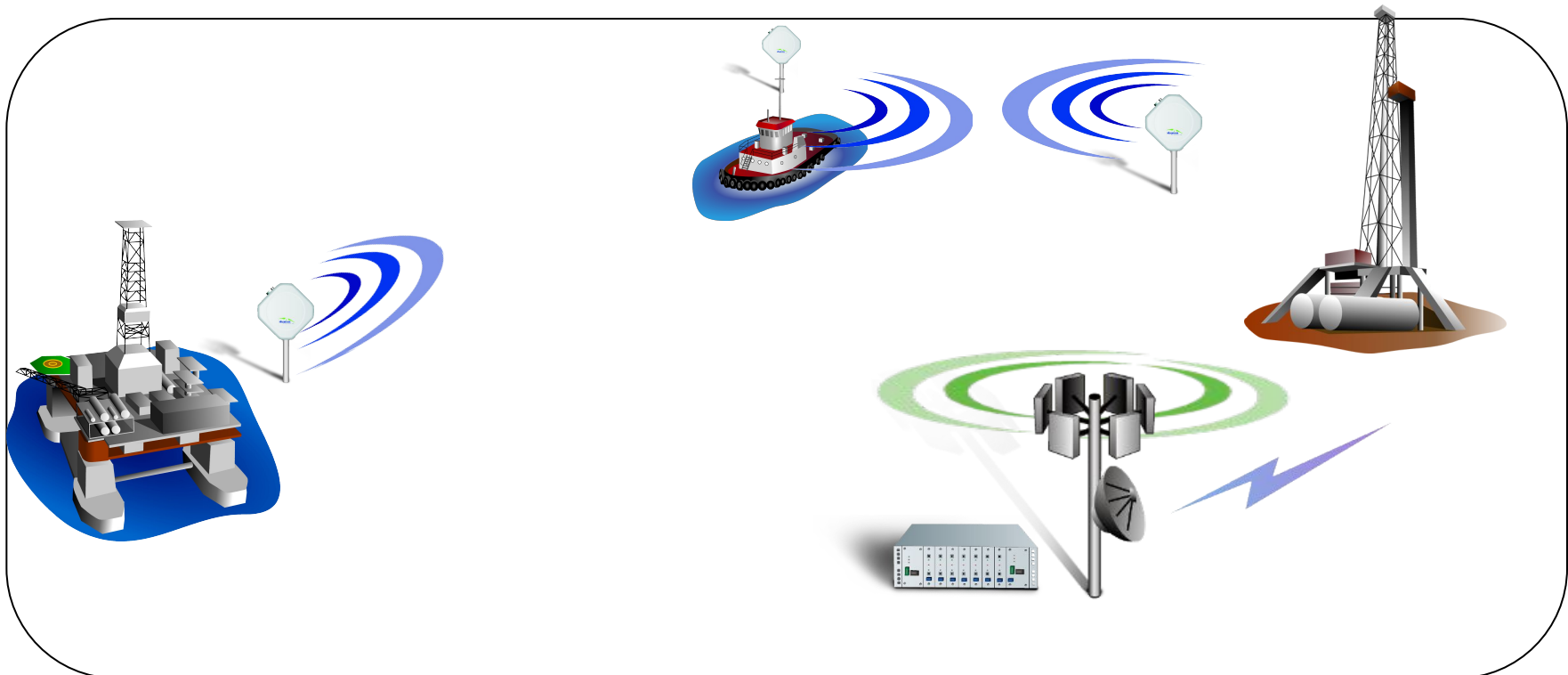
- Access to office applications, real-time data access, VoIP

- **Business benefit**

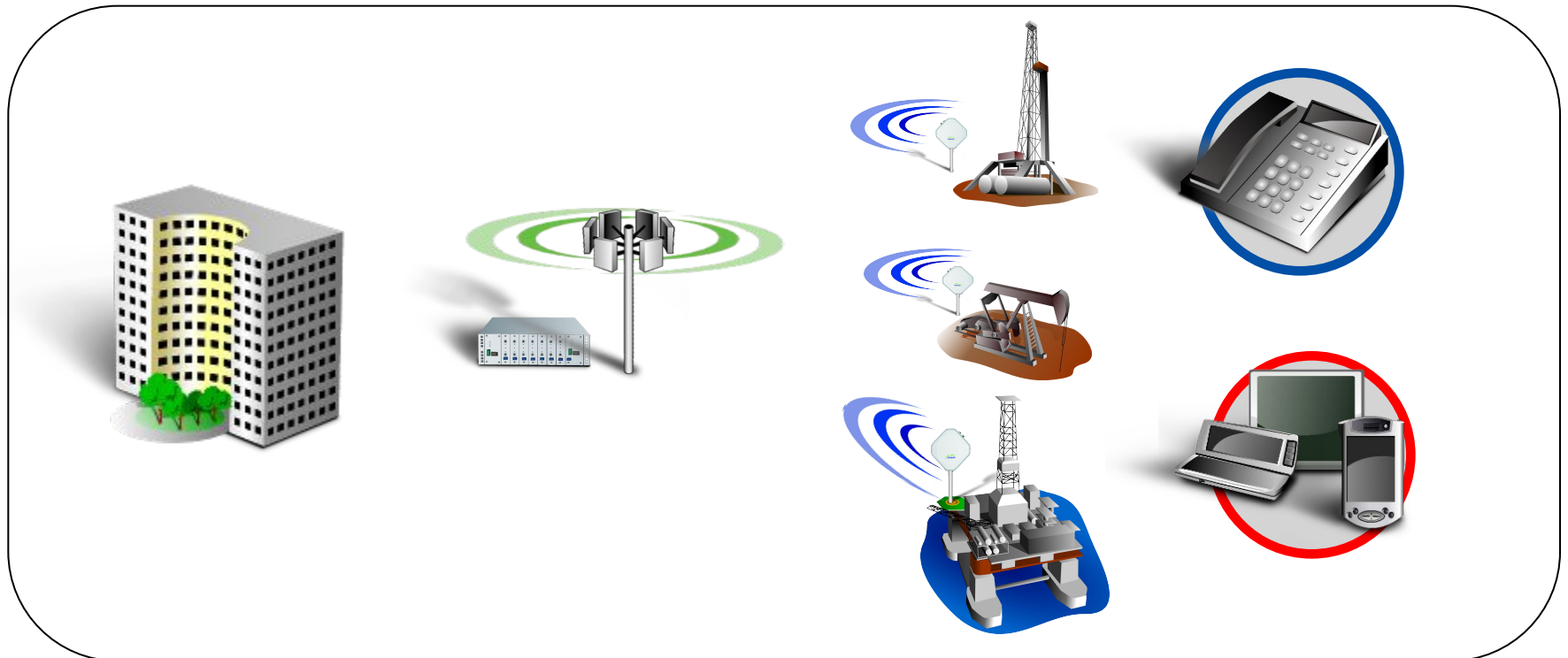
- Access corporate networks from the field, save hours of travel time per day



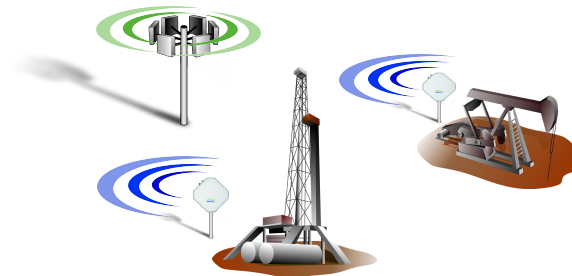
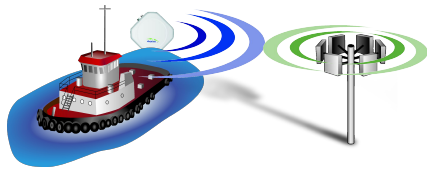
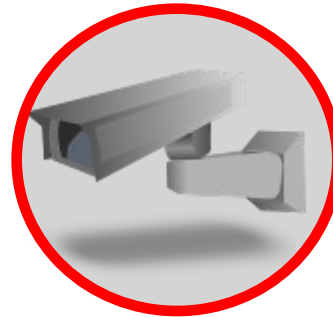
- **Potential deployments**
  - Rig to platform; rig to ship; well-head deployment; exploration operations
- **Potential applications**
  - SCADA backhaul; broadband to the well-head; real-time data analysis
- **Business benefit**
  - Automate (previously manual) synchronization – save time and labor



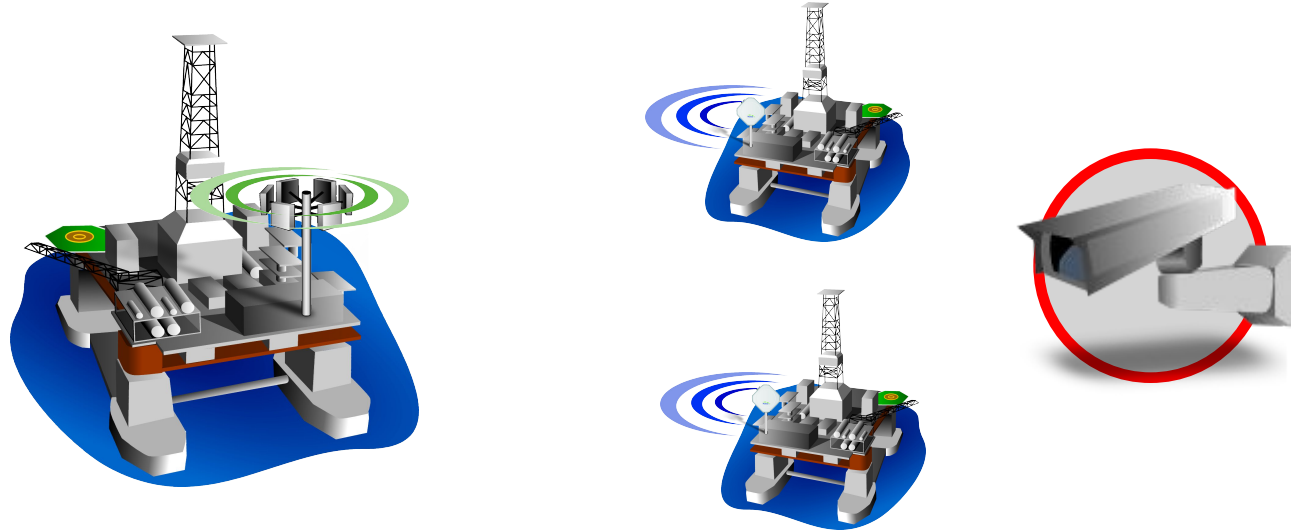
- **Potential deployments**
  - Rig to platform; rig to ship; well-head deployment; exploration operations
- **Potential applications**
  - VoIP, video conferencing, remote training, data sharing
- **Business benefit**
  - Use professional staff time, save unnecessary travel



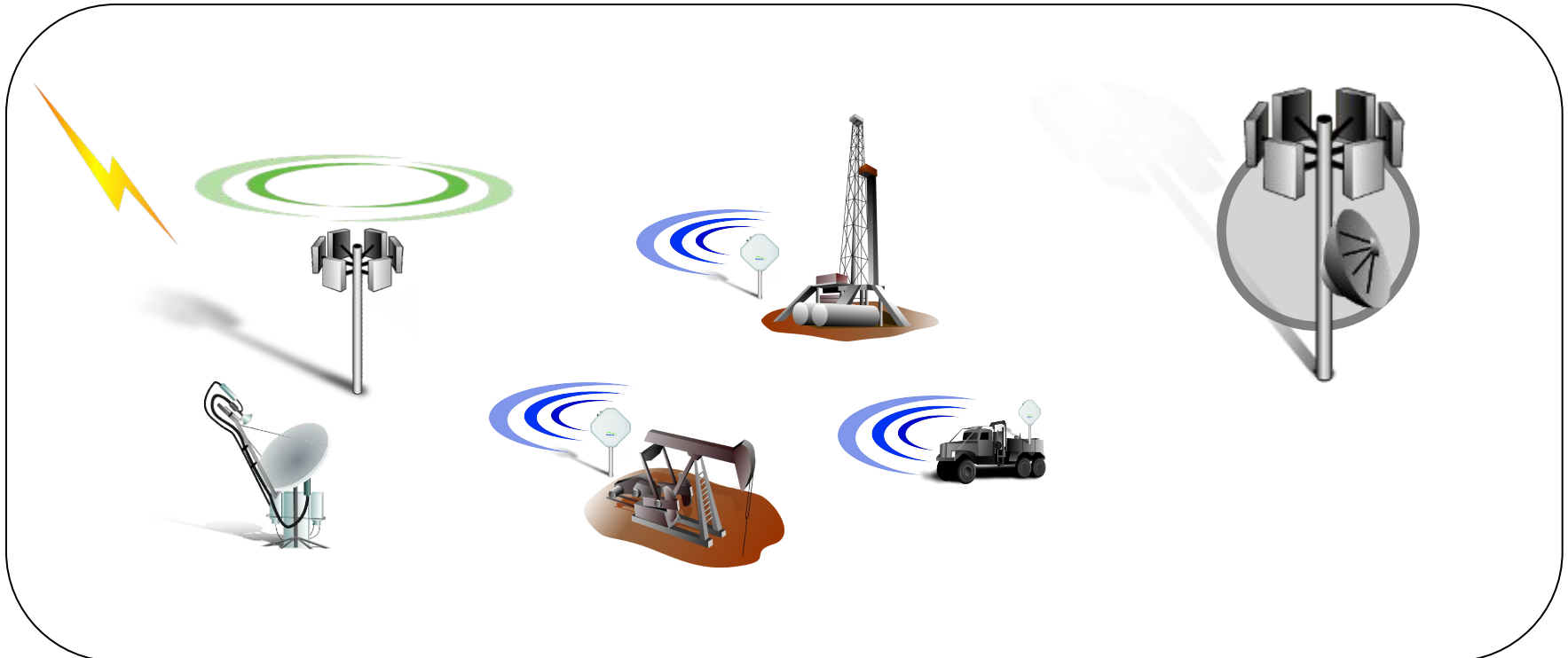
- **Potential deployments**
  - Nomadic or mobile assets; well-heads
- **Potential applications**
  - Video surveillance; asset tracking; alarm monitoring
- **Business benefit**
  - Guard valuable assets, comply with safety regulations



- **Potential deployments**
  - Unmanned production platforms; remote well-heads
- **Potential applications**
  - Spill monitoring, Emissions monitoring
- **Business benefit**
  - Increase Productivity, decrease monitoring costs



- **Potential deployments:**
  - Remote office; temporary base camps; remote equipment
- **Potential applications:**
  - VoIP; video; SCADA; environmental; asset tracking
- **Business benefit:**
  - Flexibility in operations while keeping communication costs low.









4

## System requirements







- **High survivability** 
  - MTBF over 11 years; over 99.99% availability
  - -40°C to + 60°C temperature range
- **Robustness & redundancy** 
  - IP-67 rating (NEMA 4X equivalent)
  - AU & SU redundancy
  - OFDM & GFSK interference resistant solutions
- **Long term battery backup** 
  - Solar and wind power configurations available
  - Emergency back-up power solutions
- **Intrinsic safety**
  - Class I, Div 2 certification  in process



Solution Provided by Alvarion



Improvements In Process

- **Range & coverage** 
  - OFDM technology provides NLOS coverage and handles multi-path reflections
  - Maximum cell radius up to 20 miles
- **Throughput** 
  - 32 Mbps per sector (FTP)
- **Security** 
  - Hardware based AES encryption
  - VLAN support
  - Secure network management
- **CIR** 
  - Committed information rate per subscriber is supported





1

## Success Stories



**\* For more details – please contact your Alvarion regional Sales Manager**



**Thank You**