



 **IsatData Pro Overview**

Digital Skies Event – Houston 2013



SkyWave

IsatData Pro Summary

- Global coverage with single operator (no roaming fees)
- Uses L-band geostationary satellites
 - All-weather, highly reliable, consistent performance
 - Long service life (beyond 2023)
- Bidirectional communications
 - Fully acknowledged report, query and control
- Low cost satellite terminals and airtime
- Ultra-low power consumption
- Programmable and highly flexible
 - Data optimization/compression helps keep airtime costs low

IsatData Pro System Overview



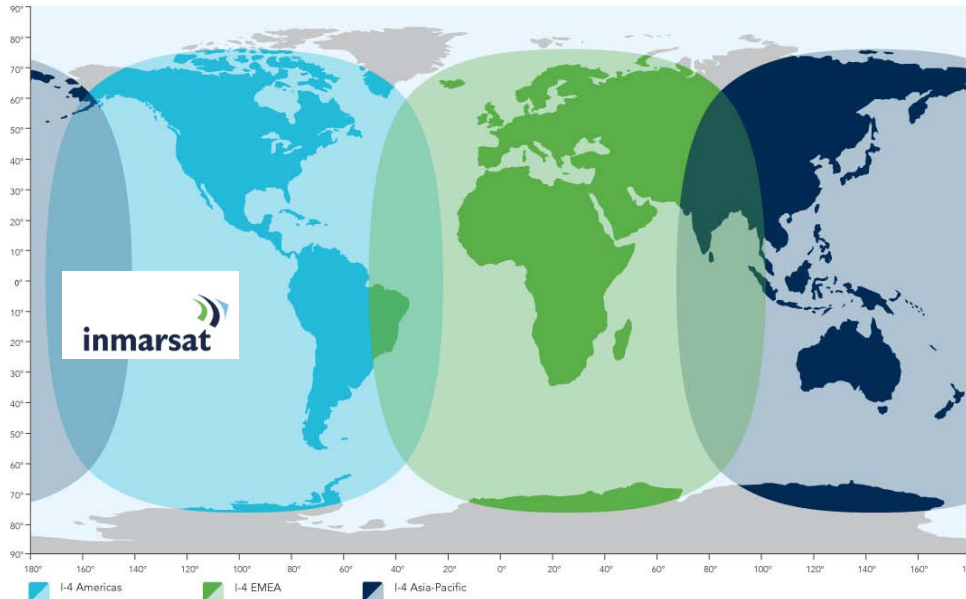
IDP-600



IDP-700 dual-mode



IDP-800
battery
powered



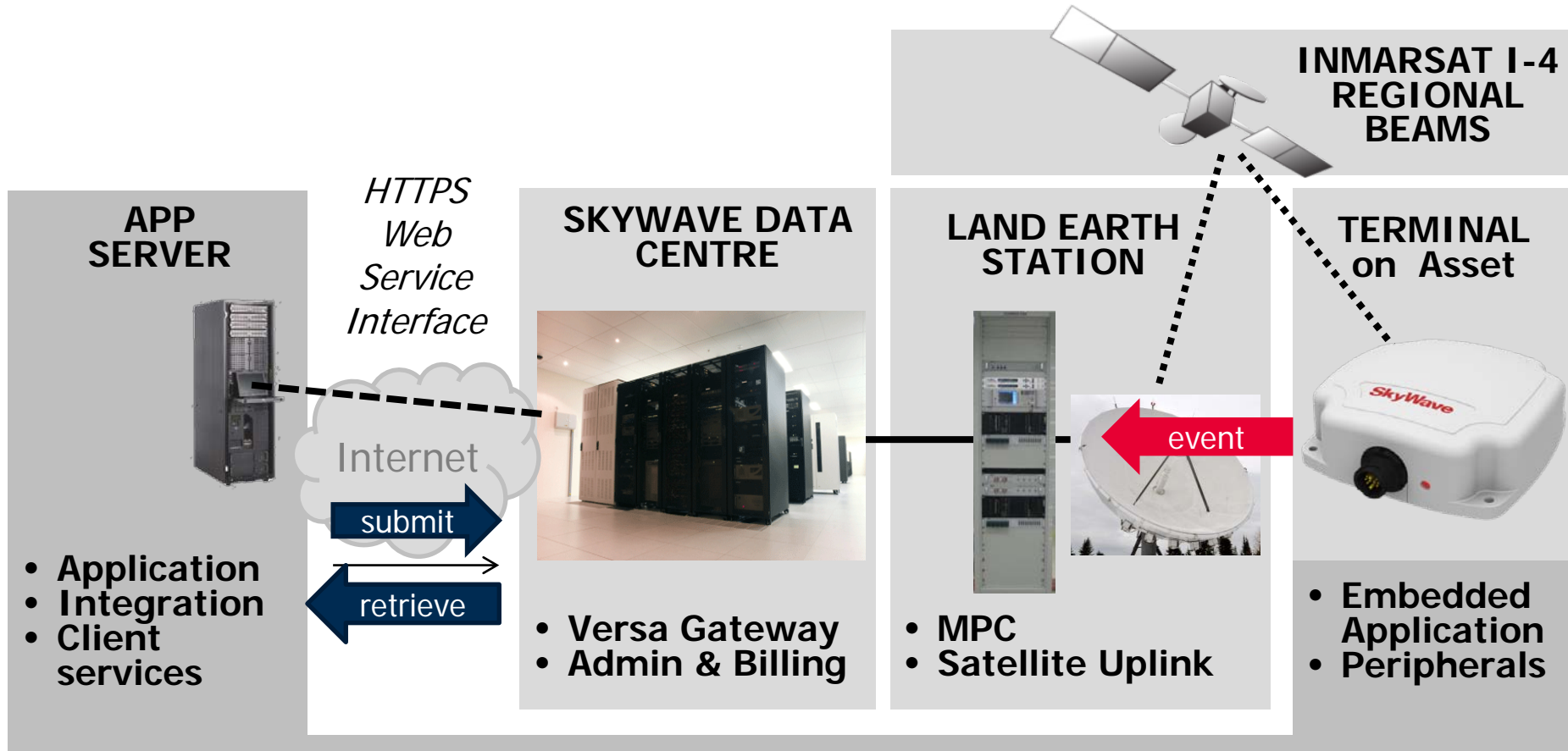
Applications

- Tracking
- Dispatch
- Automation
- OHSE
- Telemetry
- SCADA

To-Mobile	15 - 10,000 bytes
From-Mobile	15 - 6,400 bytes
Responsive	< 15 second event response
Scalable	< 60 second per kilobyte
Reliable	> 99.5% worldwide

The most flexible low-speed data technology in the market.

IsatData Pro: Store and Forward



What can you do with IsatData Pro?

> Tracking

- GPS location, 1 location/day to 1 location/minute
- Intelligent updates (fast when moving, slow when stationary)
- Geo-fence violations (safe/unsafe zones)



> Fleet Management (OHSE)

- Driver safety (panic, speeding, braking, long hours, no seatbelt, ...)
- Vehicle utilization (odometer, hours of service, idling, ...)
- Logistics (route adherence, ETA, driver ID)



> Messaging, Dispatch and Forms

- Safety and logistics of having SMS-like capability 'everywhere'



> Monitoring, Telemetry and SCADA

- Daily heartbeat 'all ok'
- Periodic updates supplemented with event triggers
- Efficient data transport (0.1MB on 3G = 10 kB on IDP)



IDP-600 Series

- Self contained 1-piece unit
 - Satellite modem + omnidirectional antenna
 - High sensitivity GPS
 - Programmable microcontroller
 - Serial ports (RS232 + RS485)
 - General Purpose Input/Output
 - Embedded intelligence
 - LED status indicator
- IDP-680 (aka land)
 - Patch antenna $\geq 20^\circ$ elevation
- IDP-690 (aka maritime)
 - Helix antenna $\geq -5^\circ$ elevation



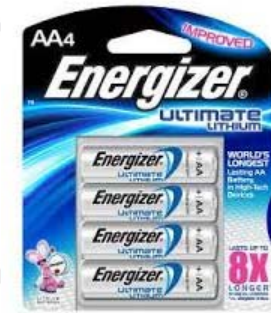
IDP-700 Series

- IsatData Pro + GPRS cellular
 - Configurable least-cost routing
- Superset of IDP-600 features
 - More serial ports
 - More input/output
 - More memory & processing
 - CAN bus
 - Optional backup battery
- Antenna options
 - Low profile (patch $\geq 20^\circ$ el.)
 - Low elevation (helix $\geq -5^\circ$ el.)



IDP-800 Series

- Battery-powered IsatData Pro
 - Rechargeable (NiMH) or
 - Non-rechargeable (LiFeS₂)
 - Field serviceable compartment
- Superset of IDP-600 features
 - 3-axis accelerometer
 - Magnetic on/off switch
 - 1" height restriction (trailer, rail)
- Mounting options
 - Permanent (VHB)
 - Temporary (Magnetic feet)



Hardware Features – IDP Series

- Designed for widest range of industrial environments
 - -40°C to +85°C
 - 95% humidity
 - Solar and UV stability
 - IP67 (dust & water protection)
 - SAE J1455 load dump (surge)
 - IEC 60945 maritime (salt, ...)
 - Class I Division 2 available
- LED indicator for installation



Interfaces and Ports

- RS232
- RS485
- Modbus
- GPIO
 - Digital
 - Analog 0-3V
 - Open collector
 - Push-pull



Event Response



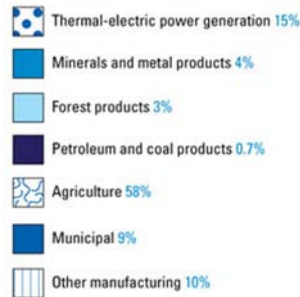
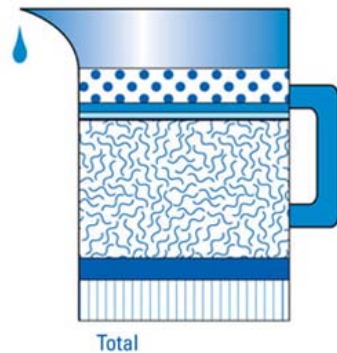
- Pipeline integrity
 - Rectifier voltage
 - Exercise sequence
- Business continuity
 - Shutdown → Dispatch
 - Rapid first time fix
- Site security
 - Door, proximity alerts

Flow Metering and Valve Control



- Trending data
 - Hourly PVT
- Valve control
 - Local/automatic
 - Manual/remote
- Operational efficiency
 - Reduce site visits

Automatic Meter Reading



Source: Natural Resources Canada, 2005

> Rural water metering

- Accurate, timely billing
- Leak detection
- Multi-year battery life; low maintenance
- Small footprint

> Fracking consumption

Weather Monitoring



- Monitor weather conditions near mines
 - Predict highest yields
 - 15-minute updates
 - Web access for meteorologists

OHSE: Tracking & Driver Safety

The screenshot displays the SkyWave GPS tracking software interface. The main window shows a satellite map with a blue line representing a vehicle's path. A popup window titled "Position Information" provides the following data:

Position Information	
Asset ID	GBP Demo IDP-780
Timestamp	4/1/2013 8:15:28 AM
Address	229 Eagleson Rd, Ottawa, ON K2M, Canada
Coordinates	Lat/Lng: 45.308400, -75.879100
Speed	69.0 kph
Heading	338°
Source	Satellite

The interface also includes a sidebar with filters for "Groupings", "Geofences", and "Places". The "Geofences" section lists "Major Roadway 1" and "Residential Zone 1". The "Places" section lists "Ecole JPill", "Mt Pakenham", "SkyWave HQ", and "Thunderbird Clubhouse".



Solution Delivery Partners

