Enabling Networks to Reach New Markets

Star Solutions
CDMA2000 All-IP Applications

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Applications

- Rural Mobile Networks
- Hard-to-Reach Coverage Areas
- Wireless Local Loop Services
- In-building Wireless, Enterprise Campus
- Rapid Deployment, Portable Wireless Solutions
- Maritime – Cruise Ships, Ferries, Yachts, Commercial Fleets
- Special Customized Applications
Rural Areas
Deployment Scenarios

- Macro BTS
- High Power
- High Capacity
- High Tower
Deployment Scenarios

- Macro or Compact BTS
- Medium Power
Deployment Scenarios

- Compact BTS
- Low Power
Coverage Maps

Coverage maps

Coverage by Signal Level

Effective Service Area
Network Architecture
Transmission Cost Case Studies - MoviCell CDMA Network

<table>
<thead>
<tr>
<th>Assumptions</th>
<th>Traffic Model</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transmission Network</td>
<td></td>
</tr>
<tr>
<td>Satellite Links</td>
<td></td>
</tr>
<tr>
<td>E1 per month $10,000</td>
<td></td>
</tr>
<tr>
<td>Central Hub with Land Connections</td>
<td></td>
</tr>
<tr>
<td>Region A</td>
<td></td>
</tr>
<tr>
<td>Remote Hub with Land Connections</td>
<td></td>
</tr>
<tr>
<td>Region B, C, D, E</td>
<td></td>
</tr>
<tr>
<td>Number of sites served</td>
<td></td>
</tr>
<tr>
<td>32</td>
<td></td>
</tr>
<tr>
<td>Total simultaneous calls</td>
<td></td>
</tr>
<tr>
<td>1632</td>
<td></td>
</tr>
</tbody>
</table>
# Case Study

### Cost Structure

*Transmission Costs all regions*

<table>
<thead>
<tr>
<th>Satellite Rate:</th>
<th></th>
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<tbody>
<tr>
<td>Cost per E1 per month</td>
<td>$10,000</td>
</tr>
</tbody>
</table>

### Transmission Costs Comparison

<table>
<thead>
<tr>
<th></th>
<th>Traditional</th>
<th>STAR SOLUTIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>BTS-MSC calls per E1</td>
<td>178</td>
<td>240</td>
</tr>
<tr>
<td>Required E1s</td>
<td>73</td>
<td>14</td>
</tr>
<tr>
<td>Monthly cost</td>
<td>$730,000</td>
<td>$140,000</td>
</tr>
<tr>
<td>Annual cost</td>
<td>$8,760,000</td>
<td>$1,680,000</td>
</tr>
<tr>
<td>Potential annual savings ($)</td>
<td>$7,080,000</td>
<td></td>
</tr>
<tr>
<td>Potential annual savings (%)</td>
<td></td>
<td>81%</td>
</tr>
</tbody>
</table>
CDMA All-IP Mobile Network

Simple Flat Network Architecture

- MSC Server
- Roaming Networks
- PSTN
- TDM Equipment
- Internet
- IP-Based Transmission Network
- Remote Access Network
- PDSN
- CDMA2000 IP-RAN

CDMA All-IP Mobile Network

Simple Flat Network Architecture

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- CDMA2000 IP-RAN
iCell S-RAN Option, Unique Solution for Connectivity to Wireline Networks

- Simple CDMA2000 1X Access Solution for Wireless Local Loop
- iCell S-RAN connects to existing NGN Network using SIP
- Use 3rd Party SIP Servers for Call Control / Call Management
Star Solutions’ Unique All-IP Wireless Solution

IP Network Core, All Local Calls Routed Locally

Distributed Radio Access Networks

Packet Network

Mobility Core Network

CDMA BTS

MG

CDMA BTS

MG

PSTN

IP

Microwave, Fiber, Satellite

Managed IP Network

Call Manager

MG

PDSN

PSTN

IP

Signalizing

Local Network

Managed IP Network

Local Network

Local Network

IP

Confidential Information

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Distributed Radio Access Networks

CDMA BTS

Packet Network

Managed IP Network

Signaling

MSC Server

PDSN

PSTN

PLMN

IP

Star Solutions’ Unique All-IP Wireless Solution

Distributed Radio Access Networks

CDMA BTS

Packet Network

Managed IP Network

Signaling

MSC Server

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PSTN

PLMN

IP

Star Solutions’ Unique All-IP Wireless Solution

Distributed Radio Access Networks

CDMA BTS

Packet Network

Managed IP Network

Signaling

MSC Server

PDSN

PSTN

PLMN

IP

[Diagram showing the integration of Distributed Radio Access Networks with Packet Network and Mobility Core Network, seamlessly connecting CDMA BTS, MSC Server, PDSN, PSTN, PLMN, and IP through Signaling to the Managed IP Network.]
Rapid Deployment
Transportable Systems

Portable Wireless Solutions
Portable Systems

• The Star Solutions portable system can provide a cost-effective end-to-end wireless network solution in a single transit case.
• It is ideal for disaster recovery as well as military/government operations that require stand-alone networks with full RF power and simple installation.
• The system can be customized for specific applications using standard 19” rack mountable equipment modules.
• The system is compact and easy to operate.
• All components are IP based for maximum flexibility.
Cruise Ship Application

Input Power: 120/240 v AC

Router

CEM

Earth station

IP Transport

IP

Internet

PDSN

AAA

GPS

sBSC

1x BTS - Pico

EVDO BTS - Pico

RNC

Router

VSAT Terminal

Input Power: 120/240 v AC
Enterprise Solutions

Corporate PBX
Coal Mines
Femtocells / Picocells in Enterprise