



Networking Tonga from the Ground Up and the Sky Down

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Role of FCC in US

- Communications Act of '34
- Spectrum Management & Policy
- 'Tragedy of the Commons' Problem
- Technological Advisory Council



New Problems

- Internet Appliances
- UWB = More Bandwidth!!!
 - Spectrum Overlay
- Smart Radios
 - Software Defined Radios
- Convergence
 - Mobility vs Fixed



Regulatory Summary

- Regulatory issues are the biggest problem in the way of a paradigm shift for wireless!
- More technology available than we know what to do with!
- Need to find a place where wireless regulatory issues are absent!!



Kingdom of Tonga Project

- Island group in the South Pacific
- About 170 islands, 70 inhabited
- 100K people in Tonga, about the same number outside Tonga
- Agricultural exports main source of \$
- One of the last true monarchies



The Task

- Business project of the Crown Prince
- Move country from wired to totally wireless infrastructure
- Two Phases
 - International
 - Domestic
- No regulatory issues!!!



Basic Statistics

- 40K Households
- 6500 phone customers
- 8 yr. waiting list to get a phone
- Cable & Wireless handles international
- Tonga Telecom handles domestic



Technology

- Wireless Multiservices IP Network
 - Scalable, fully meshed network
- Use of wideband wireless devices
 - Spread Spectrum
 - Ultrawideband
- New two-way VSAT technologies
 - Tachyon
- Support for new Internet appliances
 - New PDA's
 - Playstation II
- Goal of CPE cost of about \$300

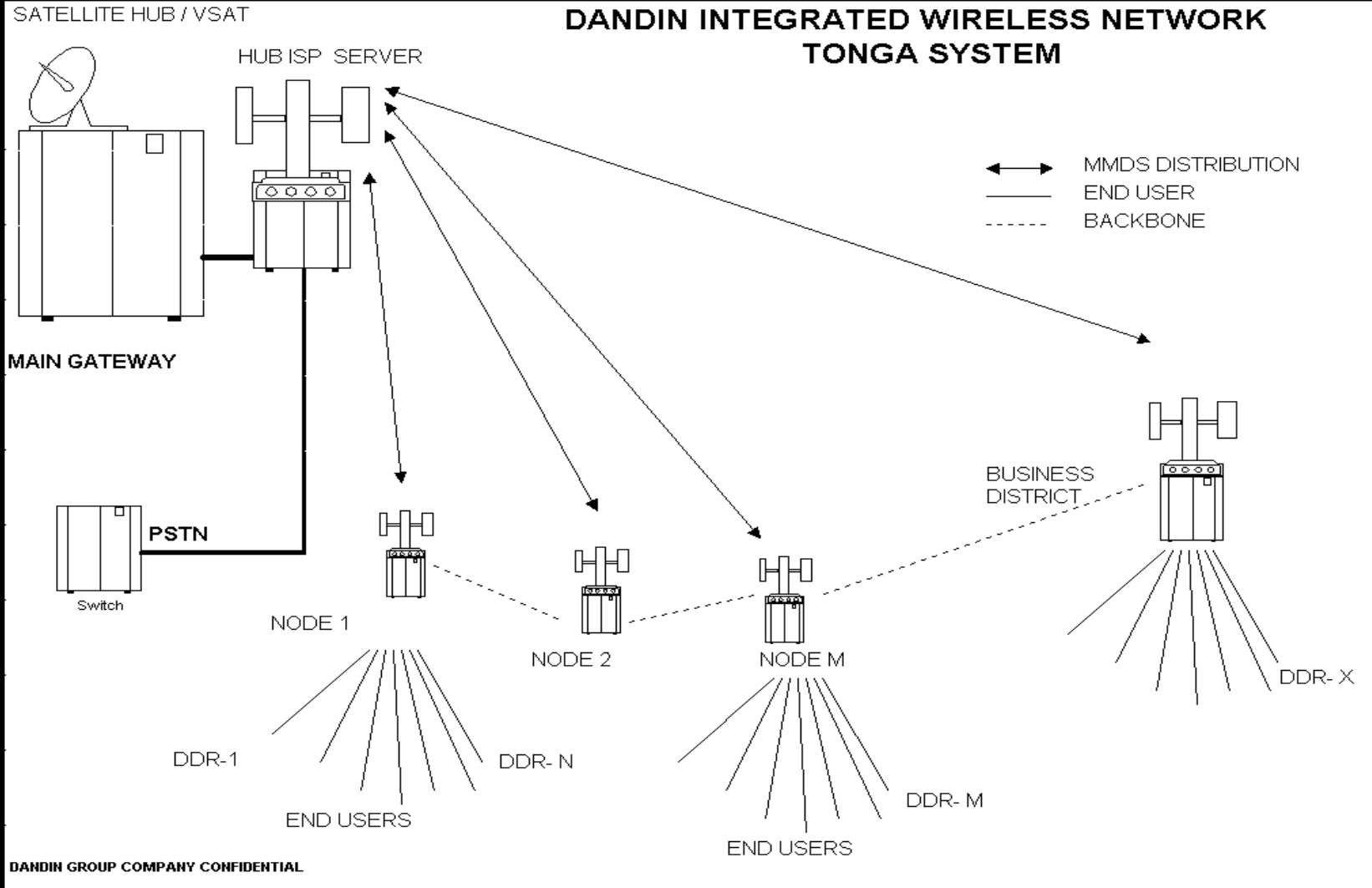


Services

- VoIP for telephony
- Internet data
- Video
- Introduce 'Smartcard' for access to services, billing



Kingdom of Tonga



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AN-MSI Project

- NSF and EDUCAUSE effort
- Deploy pilot projects in Tribal Lands
- Use similar architecture and technologies as in Tonga
- Adapt to US environment
- Innovative use of two-way satellite and terrestrial wireless



Questions?