BLiNQ NETWORKS

Spectrum Management & Interference Detection

January 14, 2013

Small Cell Proliferation & Non-Line of Sight (NLOS) Backhaul

Bring Backhaul to the Small Cell Rather than Bringing the Small Cell to Where Backhaul Happens to Be

Better Coverage and Capacity

Better Interference Management

Smarter Spectrum Usage

Optimal Use of the 3.5 GHz Band Is Driven Not by Low Power, But by Smart Coexistence

Directional Antenna (Beamformer) with Proper Tilting Can Allow Higher-Power Uses While Eliminating Inter-Cell Interference

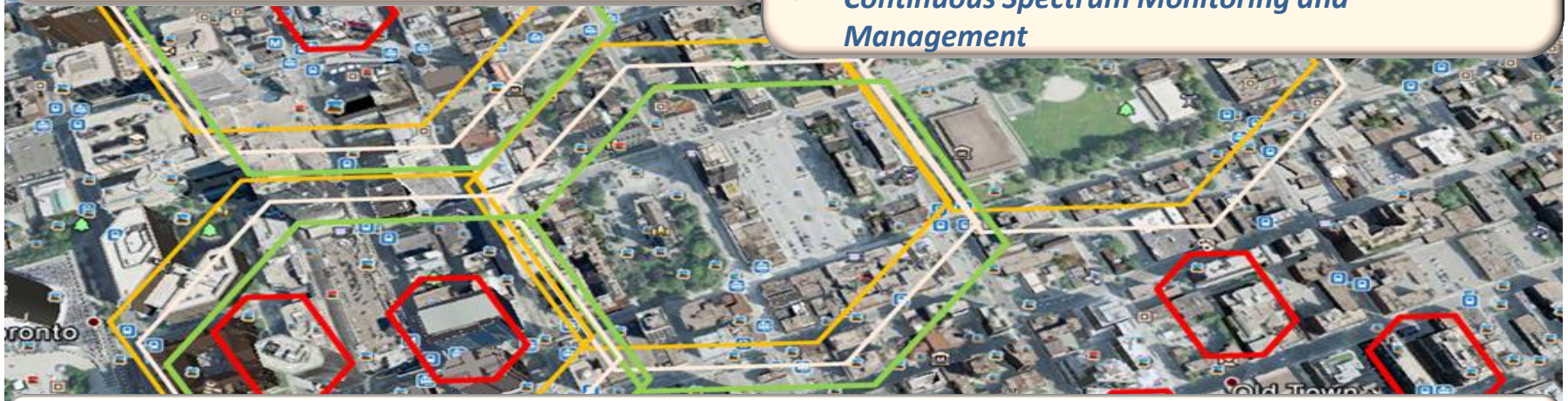
Coordinated Sharing Based on Time, Frequency, and Geography Will Promote Intensive Use By Diverse Applications

NLOS Backhaul Can Readily Co-Exist at 3.5 GHz if Power Limits Are Relaxed in a Portion of the Band

Coordinated & Microtargeted Spectrum Assignment

Enhance Efficiency in PA and GAA Tiers by Employing a Uniformly-Sized and Microtargeted (e.g., Building-Sized) Unit of Spectrum (Defined by Frequency and Geography)

- *Assign PA Channel at Time of Operation*
- *If PA Channel is Unused, GAA Can Access*
- *Specify Precise Deployment Requirements (e.g., Power, Perimeter) and Authorize Each Deployment*
- *Continuous Spectrum Monitoring and Management*



Uncoordinated Co-Existence is Inefficient; Coordination is Required
Synchronized Operations Based on a 1 ms Slot
Coordinated Allocation and Usage of Spectrum in PA and GAA Tiers

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SAS and Device Capabilities

To Promote Coordinated and Intensive Use of the Band:

- *The SAS Must Predict the Received Signal Level (RSL) of PA and GAA Operations over an Area*
- *The SAS Must Dynamically Authorize Usage of Channels*
- *All Devices Must Have Channel-Hopping and Listen-Before-Talk Capabilities*

AU Device Capabilities

1 ms Slot Synchronization
Deployment Configuration Report (DCR)
Initial Channel Assignment List
Initial Channel Scanning & Report
Periodic Interference Sensing (CBP)
Dynamic Channel Hopping
Power Control
Unique Broadcast ID

SAS Capabilities

"Master Clock"
Authorization Based on DCR
Channel Assignment List
Channel Report Processing
Periodic Sensing Report Processing
Dynamic Channel Assignment
Power Control
Unique Broadcast ID Assignment

Implementation