

Project: IEEE P802.15 Working Group for Wireless Personal Area Networks (WPANs)

Submission Title: Implementation of Device Classes

Date Submitted: 16 Nov 2009

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Re: [802.15.4g] TG4g Call for Proposals,

Abstract:

Purpose: Device Class Implementation IEEE 802.15 TG4g

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Device Classes Common Signaling Modes Capabilities Message (PIB)

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November 2009

Supporters

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Introduction

- The intention of this presentation is to solicit support to identify the best method of implementing device class definitions in order to:
 - Reduce the time and effort required to merge the remaining proposals
 - Allow products to comply with the indentified interoperability need while maintaining optimal performance i.e. data-rate, battery life, coverage
 - Define a few device classes that would allow for the implementation of the best suited technology for the individual product applications
 - Eliminate the time to market delay required to develop products that meet all possible modes of operation
- The device class concept significantly improves the possibility of quickly deploying interoperable devices while allowing for a logical pairing of system performance and technical requirements

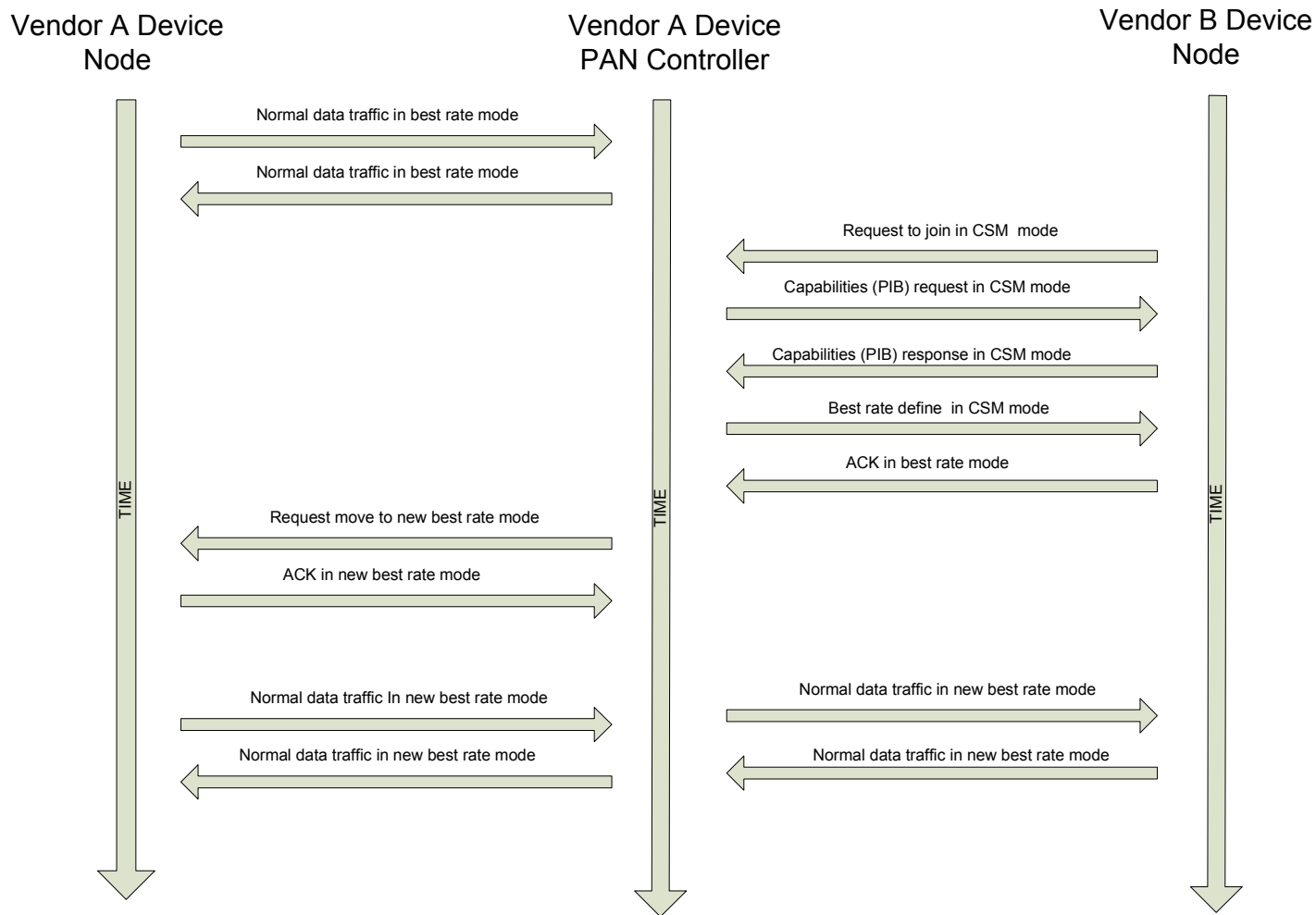
Introduction

- A unique common signaling mode (CSM) would be defined for each class of devices to simplify communications within each class
- Products will not be required to interoperate with other device classes, the market will drive multi-class device development
- The PAR requires normal operation of 3 co-located networks, therefore device classes and common signaling modes would not introduce an undefined network management burden
- Defining a CSM mode will provide a single efficient signaling mode for the widest range of regulatory regional domain restrictions.
- The current 802.15.4 MAC supports the capabilities message request (PIB) that could be utilized to support signaling mode changes with little or no changes

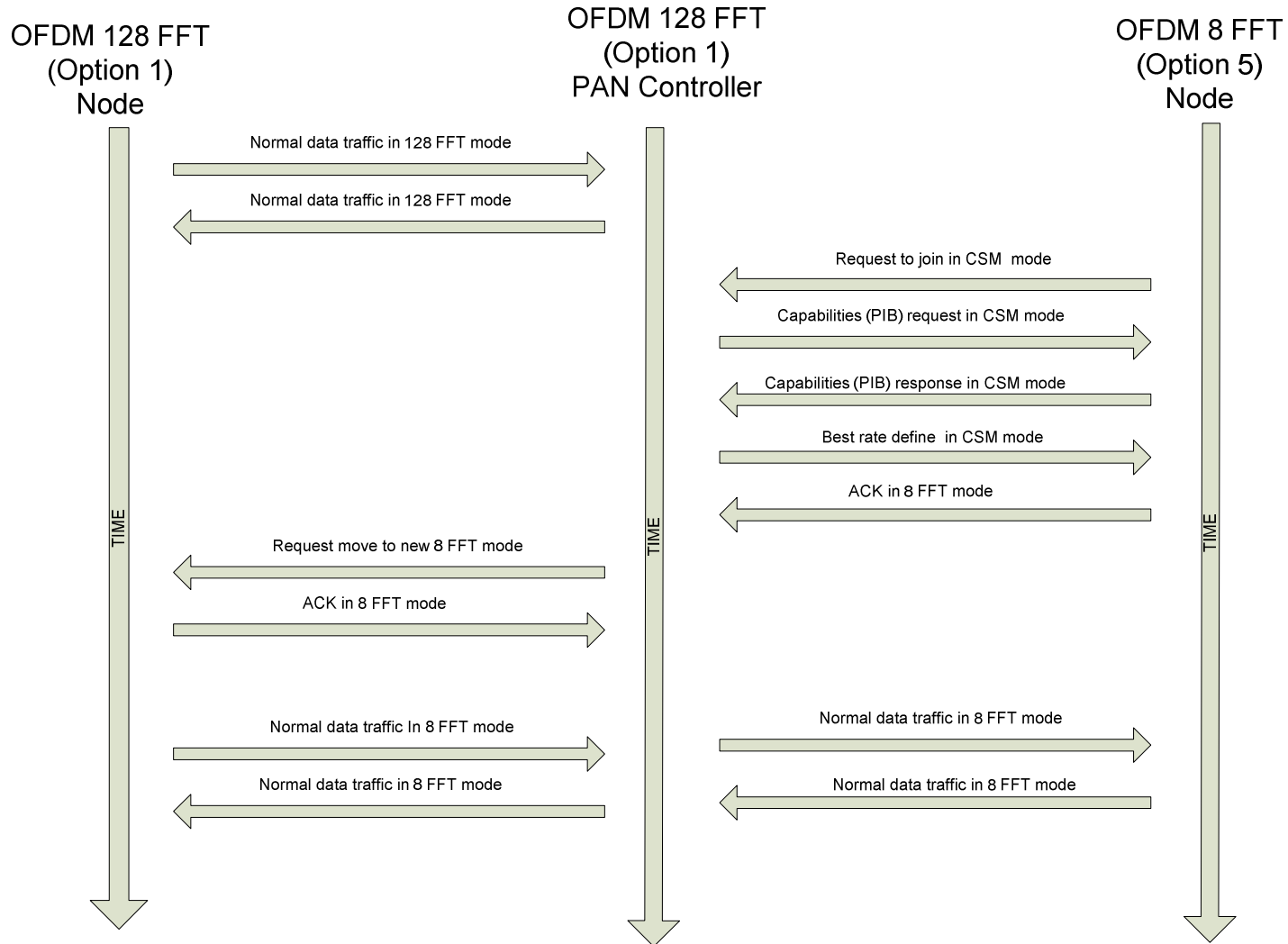
Application Class Definitions

Class A Application	Class B Application	Class C Application
<u>Daily Data Volume Requirements Per Node</u>	<u>Daily Data Volume Requirements Per Node</u>	<u>Daily Data Volume Requirements Per Node</u>
<p>> 10M BYTES</p>	<p>10K to 10M BYTES</p>	<p>< 10K BYTES</p>
<p>Primary Signaling Mode</p>	<p>Primary Signaling Mode</p>	<p>Primary Signaling Mode</p>
<p>Bandwidth 200kHz</p>	<p>Bandwidth 200kHz</p>	<p>Bandwidth 12.5kHz</p>
<p>QPSK r= 1/2</p>	<p>2.0 Mod Index</p>	<p>4.00 Mod Index</p>
<p>Base FFT 16</p>	<p>BT 0.5</p>	<p>BT 0.5</p>
<p>100 kb/s</p>	<p>GFSK</p>	<p>GFSK</p>
<p>(93.75kb/s)</p>	<p>40kb/s</p>	<p>1kb/s</p>
<p>Secondary Signaling Mode</p>	<p>Secondary Signaling Mode</p>	<p>Secondary Signaling Mode</p>
<p>Implementer Choice</p>	<p>Implementer Choice</p>	<p>Implementer Choice</p>
	<p>? ½ Rate Viterbi or RS232 ?</p>	

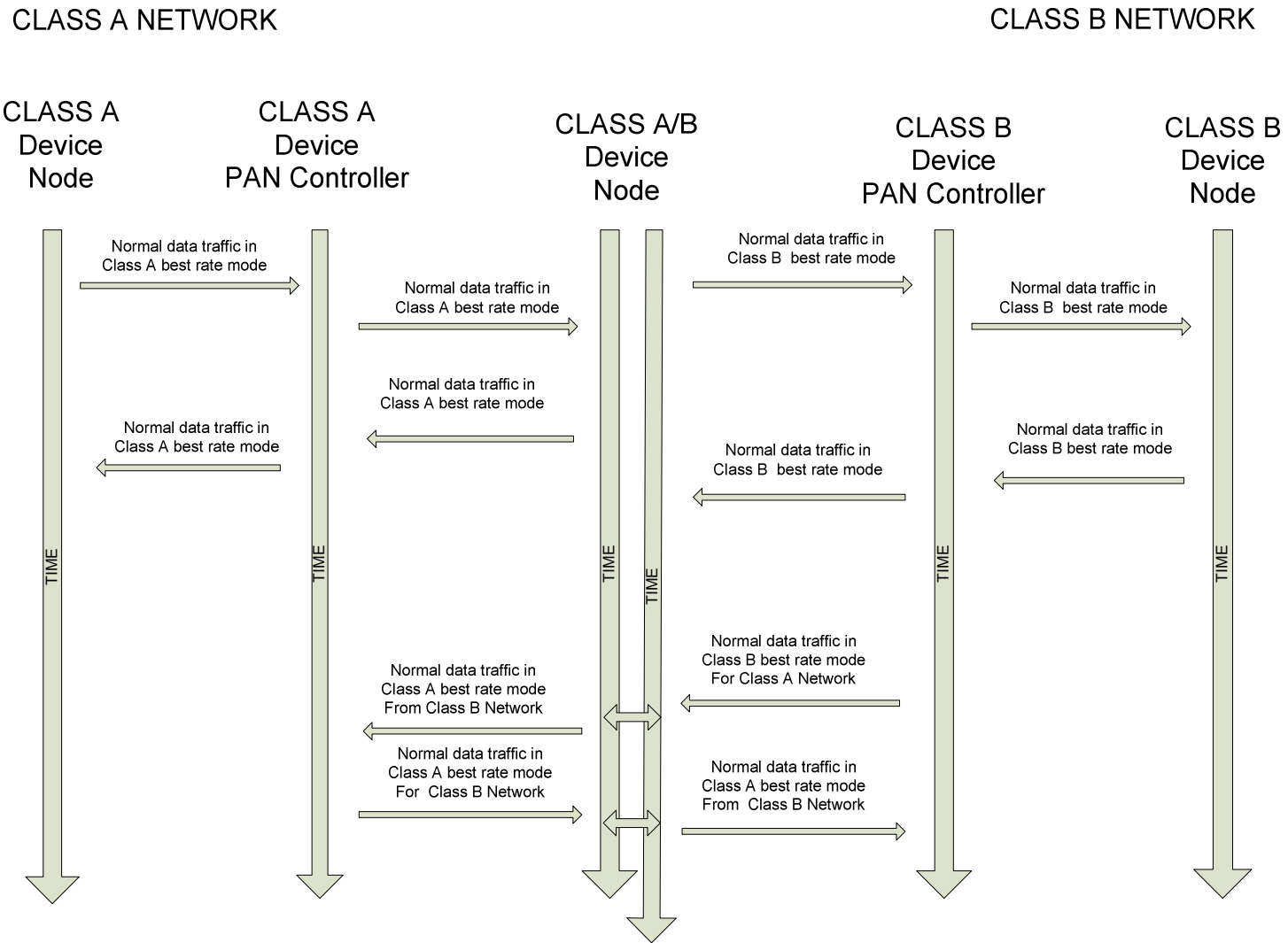
Common Signaling Mode (Multiple Vendors)



Common Signaling Mode (incompatible modulation types)



Multi-Class Communications



- Questions ?