

CableLabs[®]

PacketCable[™]2.0

Request For Information

ISSUED

June 4, 2007

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Released 06/04/2007

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1 OVERVIEW

CableLabs' PacketCable project is seeking information regarding the development of products that adhere to requirements defined in the 3GPP IMS, PacketCable 2.0, and PacketCable Residential SIP Telephony set of specifications. This request for information is soliciting supplier input on product configurations and interface implementations, features, and capabilities supported by the product, product development roadmaps, current trials and deployment plans, and cost model information.

The issuance of this Request for Information reflects the interest of cable television system operators and CableLabs. Responses from manufacturers will be used by cable operators for planning their PacketCable 2.0 deployment strategies, and to develop the PacketCable 2.0 and PacketCable Residential SIP Telephony certification programs at CableLabs. In addition, applications described in the responses to this RFI will be taken under consideration by CableLabs to be included in the newly formed PacketCable 2.0 Applications Lab.

The PacketCable 2.0 Applications Lab provides a showcase and development test bed for the cable industry. Network element providers and application developers can demonstrate applications of interest to MSOs that operate across a PacketCable 2.0 network. In addition to showcasing their applications and network capabilities, the lab will also be used as an interoperability test bed to help CableLabs and manufacturers prepare for PacketCable 2.0 certification. To be considered for participation in the Application Lab respondents must include responses to section 12.1.1.10 for client products (UEs) and/or section 12.3.1.3 for application servers. Please only identify applications that you believe are of significant benefit to cable operators.

The PacketCable 2.0 and PacketCable Application specifications are available at the following locations:

<http://www.packetcable.com/specifications/specifications20.html>

<http://www.packetcable.com/specifications/packetcableapps.html>

The 3GPP IMS specifications are available at the following location:

<http://www.3gpp.org/specs/numbering.htm>

The issuing organizations of this RFI recognize that some products may be in the early stages of development and may not yet fully comply with PacketCable 2.0, 3GPP IMS, or PacketCable RST specifications. In those instances, please provide information on your product plans for compliance.

2 CRITICAL DATES

<u>Process Step</u>	<u>Date Completed</u>
Issue RFI	June 4, 2007
Intent to Respond	June 8, 2007 – 5:00pm MT
Respondents Submit Questions	June 11, 2007 – 5:00pm MT
CableLabs Provides Response to Questions	June 25, 2007
RFI Response Due Date	July 13, 2007 – 12 noon MT

3 RESPONSE EVALUATION PROCESS

CableLabs and CableLabs' members will review responses to the information requested below. Respondents to this RFI may receive feedback on specific technical questions from CableLabs or its members.

There will be no ranking of responses, nor will there be an "approved vendor" list resulting from this RFI. Information contained in the responses to this RFI may be used by CableLabs, in consultation with its members, for general analysis and project planning purposes, including – but not limited to – high level cost analysis, architecture development, specification developments or enhancements, certification and qualification testing, equipment interoperability testing events, application demonstration and/or interoperability testing events, application requirements development, and application specification development. CableLabs' members may use the information contained in the responses to this RFI for their own planning purposes, including – but not limited to – business case analysis, vendor and/or product selection, deployment planning, and application selection. CableLabs' members will make their own independent business judgments about which, if any, manufacturer to communicate with and which equipment to purchase, if any.

Neither CableLabs nor its members shall incur any obligation nor liability whatsoever by reason of issuance of this RFI or action by anyone relative thereto, or for any failure to award any jobs, contracts, or purchase any products in response to this RFI.

CableLabs reserves the right to extend or shorten the time schedule, as necessary, or cancel the RFI completely. The schedule may be altered to take into account any necessary clarification as well as time needed to accomplish the various levels of review. Respondents will be notified of any change in the schedule. By responding to this RFI you agree to the terms of this RFI.

4 GENERAL RESPONSE INSTRUCTIONS

Please title all responses and supporting documentation "PacketCable 2.0 RFI." Suppliers must structure their responses in a concise and logical format so that all requested information is represented. If a supplier chooses not to address certain functional requirements set forth in this document, it is important that the supplier list those areas as deliberate exclusions with comments and suggestions for eventual resolution as appropriate.

All responses will become the property of CableLabs and its member companies and may be returned only at CableLabs' option and at Supplier's expense.

Participants in this RFI may partner with other companies in order to provide a complete response to this RFI. However, under no circumstances will CableLabs act as a broker for arranging partnerships or advise participants as to other vendors who may be well suited or well disposed towards partnership within the RFI schedule.

All responses must be received by 12:00 noon MT on July 13, 2007.

E-mail delivery of Microsoft® Office Word or Adobe® PDF attachments is the desired media for responses. Paper copies are optional. CD-ROMs may be used for files too large to send via e-mail. Contact names, mailing addresses and e-mail addresses will be sent to verifiable vendors who indicate their intent to respond.

5 NOTICE OF INTENT TO RESPOND

Suppliers intending to respond to this RFI must provide notice of intent to respond, along with a contact name, title, telephone and e-mail address. Further notices regarding this RFI will only be sent to those who indicate their intent to respond. Please send these to:

Carmela Stuart
c.stuart@cablelabs.com

All suppliers who intend to respond to this RFI must notify CableLabs by 5:00pm MT on June 8, 2007.

6 CABLELABS CONTACT FOR QUESTIONS

Questions regarding this RFI should be submitted in writing via e-mail to:

Carmela Stuart
c.stuart@cablelabs.com

Questions will be answered via e-mail. Answers may be aggregated and sent to all suppliers who have notified CableLabs of their intent to respond. No further questions will be accepted after 5:00pm MT on June 11, 2007.

7 RESPONSE TO QUESTIONS

CableLabs will answer any Respondent questions that it considers appropriate and that will clarify the contents of the RFI. All Respondents having indicated their intent to respond to the RFI will be sent a document from CableLabs providing answers to pertinent questions via email on June 25, 2007. CableLabs is not obligated to answer all Respondent questions. For example, questions regarding the number of RFI packages sent out, or specifically inquiring whether particular companies received RFI packages will not be answered.

8 RESPONSE DEADLINE

All responses must be submitted to:

Carmela Stuart
c.stuart@cablelabs.com

All responses must be received by 12:00 noon MT on July 13, 2007. Information received after this deadline will not be considered and individual extensions to the due date will not be granted. All supporting materials and documentation must be included with each copy of the submitted information.

CableLabs reserves the right to extend or shorten the time schedule, as necessary, or cancel the RFI completely. Respondents will be notified of any change in the schedule.

9 CONFIDENTIALITY

All information delivered to CableLabs and the participating member companies in response to this RFI shall be submitted by each company without any obligation of confidentiality on the part of CableLabs or any of their members, unless the information is appropriately labeled as "CONFIDENTIAL" and is not within any of the exceptions to confidentiality set forth below ("Confidential Information"). Except as required in connection with review and evaluation of the RFI response, CableLabs and the participating members will not use or disclose any Confidential Information submitted by any company without prior written consent of that company. Access to Confidential Information submitted in response to this RFI shall be restricted to those officers, board members, employees, consultants, and other agents of CableLabs and its participating member companies that have a need to know the information to properly accomplish their review and

evaluation activities. Other CableLabs members may have access to the Confidential Information if they agree in writing to be bound by the terms of this section. All persons having access to the Confidential Information shall be contractually bound to maintain its confidentiality.

9.1 Confidential Information

Confidential Information shall not include any information which:

- prior to submission, is known by, or is in the possession of, CableLabs or the participating members without any restriction on its use or disclosure;
- is currently available, or becomes available, to CableLabs or the participating members from a third-party without any non-disclosure obligation in favor of the company originally supplying the same;
- is, or becomes, generally known or readily ascertainable in the cable television industry (or industries supplying or servicing that industry) through no fault of CableLabs or the participating members; or
- is independently developed by CableLabs or the participating members.

In each case, the burden of providing the applicability of the exception from confidentiality shall be on the party claiming the exception. CableLabs and the participating members shall have the right to disclose Confidential Information in response to a court order or government authority's request, after first notifying the company owning such Confidential Information of such required disclosure.

Any obligation to maintain the confidentiality of Confidential Information submitted by any company in response to the RFI shall terminate and all non-disclosure obligations shall cease **two years** following the date of submission.

10 SUPPLIER AND PRODUCT GENERAL INFORMATION

10.1 General Supplier Information

Enter contact information for this RFI. Include the company name and a contact name for clarifications on this technical volume, title, address, e-mail address, and phone numbers.

<Provide response here>

10.2 General Product Information

What are the product names and model numbers? Describe all products being included as part of this RFI. Add additional tables for each product as necessary.

Product Name	<Provide response here>
Model Information	<Provide response here>
Brief Description of Product	<Provide response here>
Date of Product Availability for Field Trial	<Provide response here>
Date of General Product Availability	<Provide response here>
Date of Product Availability for	<Provide response here>

Qualification/Certification Submission	
---	--

Product Name	<Provide response here>
Model Information	<Provide response here>
Brief Description of Product	<Provide response here>
Date of Product Availability for Field Trial	<Provide response here>
Date of General Product Availability	<Provide response here>
Date of Product Availability for Qualification/Certification Submission	<Provide response here>

11 PACKETCABLE ARCHITECTURE

PacketCable is a CableLabs specification effort designed to support the convergence of voice, video, data, and mobility technologies. PacketCable defines an architecture and a set of open interfaces that leverage emerging communications technologies, such as the IETF Session Initiation Protocol (SIP) [RFC 3261], to support the rapid introduction of new IP-based services onto the cable network. A modular approach allows operators to flexibly deploy network capabilities, as required by their specific service offerings, while maintaining interoperability across a variety of devices from multiple suppliers.

The current release of PacketCable is based on Release 6 of the IP Multimedia Subsystem (IMS) as developed by the 3rd Generation Partnership Project (3GPP). The IMS is a SIP-based architecture for providing multimedia services. PacketCable defines enhancements to the IMS in order to ensure PacketCable addresses requirements that are not already addressed by the IMS.

An overview of the PacketCable architecture elements and functional groupings is illustrated in Figure 1. A high level description of each of the elements within the PacketCable architecture can be found in the *PacketCable 2.0 Architecture Framework Technical Report* located at the following URL: <http://www.packetcable.com/downloads/specs/PKT-TR-ARCH-FRM-V02-061013.pdf>.

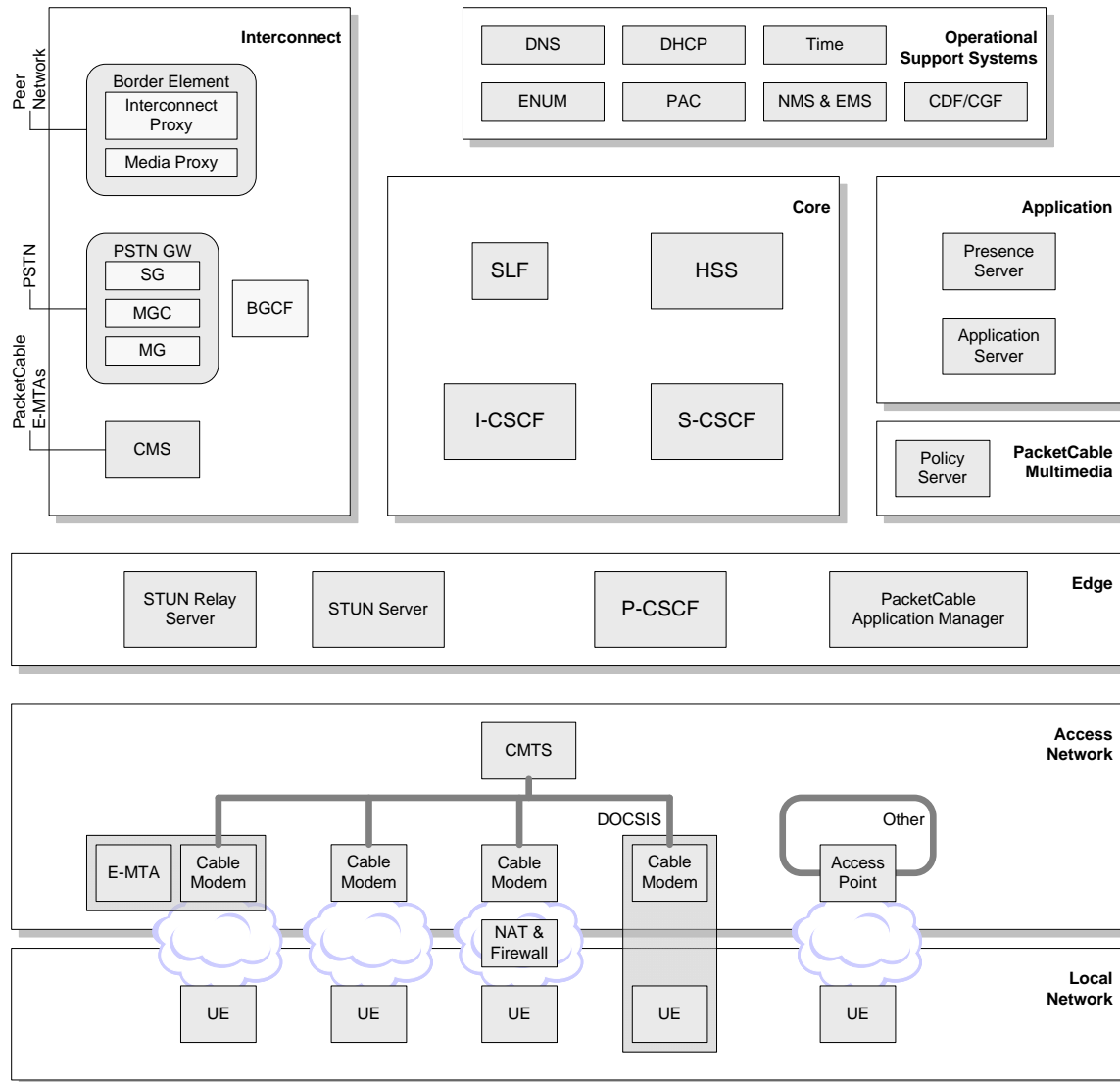


Figure 1 – PacketCable 2.0 Reference Architecture

The complete list of the PacketCable™ specifications can be found at <http://www.packetcable.com/specifications/>.

12 DETAILED PRODUCT DESCRIPTION(S)

12.1 Access and Local Network Devices

In this section we are seeking information on the products that are shown in the *Access Network* and the *Local Network* block of the PacketCable2.0 reference architecture shown in Figure 1. The *Access Network* and the *Local Network* block, as shown in Figure 1, contain CMTSs and client devices.

The questions in the next subsection pertain to the client (UE) products and their compliance to the PacketCable2.0 specifications. If more than one client (UE) product is being described, please indicate which product the answers pertain to and duplicate the questions as necessary to cover each of the products.

For details on CMTs, there is a separate subsection after the UE subsection.

12.1.1 Description of Client (UE) Product

In this section we are seeking information on the Client Devices (UE). Please provide a brief description of each client device (UE) here and then fill in the table below.

<Provide your response here>

In addition to the information above, please fill in the table below to provide some specific information on each client (UE) product including the type of user interface implemented by the client device, whether support for NAT Traversal has been implemented, and the type of Access Network supported.

Table 1 - Product Details for Client Devices (UE)

Device Name	User Interface (e.g., GUI, Analog phone)	NAT Traversal	Access Network Support (e.g., DOCSIS, GSM, CDMA, WiFi etc.)	Comments

12.1.1.1 UE Compliance to PacketCable 2.0 base specifications

PacketCable 2.0 specifications referenced in this RFI are available at the URL - <http://www.packetcable.com/specifications/specifications20.html>. The RFCs and IETF Drafts referenced in this RFI are available from <http://www.ietf.org>.

12.1.1.2 Delta PKT-SP-24.229-I02 Specification

Specify your intent to comply with the “shall” requirements in the specification as they apply to each product in the proposed solution. In particular lay out the roadmap of how you intend to phase-in support for those “shall” statements that are not supported in the initial release and highlight the “shall” statements that you do not intend to support.

<Provide your response here>

In addition to the information above, please fill in the interface and functionality tables for UEs in the accompanying spreadsheet. The instructions for filling in the tables are available in the spreadsheet. The following tables in the accompanying spreadsheet must be filled in order to complete this section.

- Table 9 - Interfaces Supported by Client Device (UE)
- Table 10 - SIP Extensions Supported by Client Device (UE)
- Table 11 - Interfaces Supported by Client Device (UE) for NAT Traversal
- Table 12 - Protocol Supported by Client Device (UE) for NAT Traversal

12.1.1.3 Delta PKT-SP-33.203-I02, PKT-SP-33.210-I02, PKT-SP-33.220-I02, PKT-SP-24.229-I02 Specifications

Specify your intent to comply with the “shall” requirements in the specifications as they apply to each product in the proposed solution. In particular, lay out the roadmap of how you intend to phase-in

support for those “shall” statements that are not supported in the initial release and highlight the “shall” statements that you do not intend to support.

<Provide your response here>

In addition to the information above, please fill in the interface and functionality tables for UEs in the accompanying spreadsheet. The instructions for filling in the table are available in the spreadsheet. The following table in the accompanying spreadsheet must be filled in order to complete this section.

- Table 13 - Methods Supported by Client Device (UE) for Security

12.1.1.4 PKT-SP-CODEC-MEDIA-I02 Specification

Specify your intent to comply with the “MUST” requirements in the specification as they apply to each product in the proposed solution. In particular lay out the roadmap of how you intend to phase-in support for those “MUST” statements that are not supported in the initial release and highlight the “MUST” statements that you do not intend to support.

<Provide your response here>

In addition to the information above, please fill in the interface and functionality tables for UEs in the accompanying spreadsheet. The instructions for filling in the table are available in the spreadsheet. The following tables in the accompanying spreadsheet must be filled in order to complete this section.

- Table 14 - CODEC Supported by Client Device (UE)
- Table 15 - Other CODEC Supported by Client Device (UE)

12.1.1.5 PKT-SP-PACM-I02 Specification

Specify your intent to comply with the “MUST” requirements in the specification as they apply to each product in the proposed solution. In particular lay out the roadmap of how you intend to phase-in support for those “MUST” statements that are not supported in the initial release and highlight the “MUST” statements that you do not intend to support.

<Provide your response here>

In addition to the information above, please fill in the interface and functionality tables for UEs in the accompanying spreadsheet. The instructions for filling in the table are available in the spreadsheet. The following tables in the accompanying spreadsheet must be filled in order to complete this section.

- Table 16 - PACM Interfaces Supported by Client Device (UE)
- Table 17 - PACM Functionality Supported by Client Device (UE)

12.1.1.6 UE Compliance to PacketCable2.0 Application Specification

PacketCable Application specifications referenced in this RFI are available at the URL - <http://www.packetcable.com/specifications/packetcableapps.html>. The RFCs and IETF Drafts referenced in this RFI are available from <http://www.ietf.org>.

12.1.1.7 PKT-SP-RST-E-DVA-I01 Specification

Specify your intent to comply with the “MUST” requirements in the specification as they apply to each product in the proposed solution. In particular lay out the roadmap of how you intend to phase-in

support for those “MUST” statements that are not supported in the initial release and highlight the “MUST” statements that you do not intend to support.

<Provide your response here>

12.1.1.8 PKT-SP-RSTF-I01 Specification

Specify your intent to comply with the “MUST” requirements in the specification as they apply to each product in the proposed solution. In particular lay out the roadmap of how you intend to phase-in support for those “MUST” statements that are not supported in the initial release and highlight the “MUST” statements that you do not intend to support.

<Provide your response here>

In addition to the information above, please fill in the interface and functionality tables for UEs in the accompanying spreadsheet. The instructions for filling in the table are available in the spreadsheet. The following tables in the accompanying spreadsheet must be filled in order to complete this section.

- Table 18 - RSTF Features Supported by Client Device (UE)

12.1.1.9 PKT-SP-RST-PACM-I01 Specification

Specify your intent to comply with the “MUST” requirements in the specification as they apply to each product in the proposed solution. In particular lay out the roadmap of how you intend to phase-in support for those “MUST” statements that are not supported in the initial release and highlight the “MUST” statements that you do not intend to support.

<Provide your response here>

In addition to the information above, please fill in the interface and functionality tables for UEs in the accompanying spreadsheet. The instructions for filling in the table are available in the spreadsheet. The following tables in the accompanying spreadsheet must be filled in order to complete this section.

- Table 19 - RST PACM Functionality Supported by Client Device (UE)

12.1.1.10 Client Products (UEs) for the PacketCable 2.0 Applications Lab

Specify any other applications that are supported by the product that you believe would be of significant interest to cable operators. Please provide a description of each application supported.

Table 2 – List of other applications supported by UE

Device Name	Application Name	Description

Please provide an architecture diagram showing interfaces and protocols for each application described above.

<Provide your answer here>

Please explain how these applications benefit the cable industry. What are the benefits and how do they affect the current services offered by cable operators?

<Provide your answer here>

Please list the name of all PacketCable 2.0/IMS Edge and Core device vendors (e.g., CSCF, AM) with which your product has successfully interoperated.

<Provide your answer here>

Do you have any plans to interoperate with other PacketCable 2.0/IMS Edge and Core device vendors (e.g., CSCF, AM) in the future that are not listed above?

<Provide your answer here>

Is there any public trial in progress or completed with any Core and Edge device vendor for this application?

<Provide your answer here>

For each application listed in Table 2 please identify the interfaces and functionality not already covered in the tables in section 12.1.1 through 12.1.1.9 that your UE supports. Please include this information in the following tables:-

- Table 46 – Additional Interfaces to Support Applications for UE
- Table 47 – Additional Functionality to Support Applications for UE

Do the applications in Table 2 impose any new requirements outside the scope of PacketCable 2.0 specifications upon the Core and Edge devices (e.g., CSCF, AM)? If so, please provide the list of new requirements on the Core and Edge devices to support each application.

<Provide your answer here>

Do the applications require an Application Server or can they operate without one? Please provide details on the Application Servers that are required for each application.

<Provide your answer here>

Does your company make these Application Servers and/or do you partner with some third party vendor? Please list the name of all Application Server vendors with which your product has successfully interoperated.

<Provide your answer here>

Do you have any plans to interoperate with other Application Server vendors in the future that are not listed above?

<Provide your answer here>

Is there any public trial in progress or completed with any Application Server vendors for this application?

<Provide your answer here>

Do the applications require any additional network elements other than those shown in Figure 1? If so, please provide names and descriptions of any additional network elements required.

<Provide your answer here>

Does your company make these additional network elements or do you partner with some third party vendor? Please list the companies that make these additional components.

<Provide your answer here>

Are you interested in demonstrating a specific application in the PacketCable 2.0 Applications Lab at Cablelabs? If so, please identify the date of availability for each application.

<Provide your answer here>

Please include a proposal for bringing your product into the PacketCable 2.0 Applications Lab that identifies the logistics, support your organization plans to provide for the application, and any other requirements that need to be met in order for your application to be showcased in the lab.

<Attach proposal to RFI response>

12.1.1.11 Other Provisioning Methods

Specify any other provisioning methods that are supported by the product. Please provide a brief description of each provisioning method supported. In particular, please provide status of support for the following provisioning method:

- PacketCable 1.5 Provisioning
- Open Mobile Alliance (OMA) Device Management(DM)

<Provide your response here>

12.1.2 Description of CMTS Product

<Provide brief description of the CMTS here and then fill in the table below>

12.1.2.1 CMTS Compliance to PacketCable 2.0 base specifications and PacketCable Multimedia I03 specification

PacketCable 2.0 specifications referenced in this RFI are available at <http://www.packetcable.com/specifications/specifications20.html>. The PacketCable Multimedia specification referenced in this RFI is available at <http://www.packetcable.com/specifications/multimedia.html>. The RFCs and IETF Drafts referenced in this RFI are available from <http://www.ietf.org>.

12.1.2.2 PKT-SP-ACCT-I02, PKT-SP-ES-INF-I02, PKT-SP-CPD-I02, PKT-SP-MM-I03 Specifications

Specify your intent to comply with the “MUST” requirements in the specification as they apply to each product in the proposed solution. In particular lay out the roadmap of how you intend to phase-in

support for those “MUST” statements that are not supported in the initial release and highlight the “MUST” statements that you do not intend to support.

<Provide your response here>

In addition to the information above, please fill in the interface and functionality tables for CMTS in the accompanying spreadsheet. The instructions for filling in the table are available in the spreadsheet. The following tables in the accompanying spreadsheet must be filled in order to complete this section.

- Table 20 - Interfaces Supported by CMTS
- Table 21 - Protocol Supported by CMTS

12.2 PacketCable 2.0 CORE and EDGE Devices

In this section we are seeking information on the products that are shown in the *Core and Edge Network* block of the PacketCable2.0 reference architecture shown in the Figure 1. The questions below pertain to the PacketCable 2.0 network products and their compliance to the PacketCable 2.0 base specifications. If more than one network product is being described, please indicate which product the answers pertain to and duplicate the questions as necessary to cover the each of the products.

12.2.1 Description of Devices

<Provide brief description of each device here and then fill in the table below>

The table below is designed to understand what PacketCable 2.0 network components are implemented by your product. The first row (in grey) in the table provides an example. The “Device Name” column should contain the name of the device. The “Network Element” column should list the PacketCable 2.0 network components (as shown in Figure 1) that are implemented by the product.

Table 3 - Product Description for Edge and Core Blocks

Device Name	Network Element	Comment
ABC	P-CSCF, I-CSCF and S-CSCF	The product ABC is a one box solution that supports P-CSCF, I-CSCF and S-CSCF functions on the PacketCable 2.0 network.

12.2.1.1 *Delta PKT-SP-23.228-I02, PKT-SP-24.229-I02, PKT-SP-23.008-I01, PKT-SP-23.218-I02, PKT-SP-29.109-I01, PKT-SP-29.228-I01, PKT-SP-29.229-I01, PKT-SP-PAMI-I02, PKT-SP-ES-INF-I02, PKT-SP-ACCT-I02 Specifications*

Specify your intent to comply with the “shall” requirements in the specification as they apply to each product in the proposed solution. In particular lay out the roadmap of how you intend to phase-in support for those “shall” statements that are not supported in the initial release and highlight the “shall” statements that you do not intend to support.

<Provide your response here to the question above>

In addition to the information above, please fill in the interface and functionality tables for Core and Edge devices in the accompanying spreadsheet. The instructions for filling in the table are available in the spreadsheet. The following tables in the accompanying spreadsheet must be filled in order to complete this section.

- Table 22 - Interfaces Supported by [P, I, S]-CSCF
- Table 23 - SIP Extensions Supported by [P, I, S]-CSCF
- Table 24 - Interfaces Supported by HSS
- Table 25 - Functionality Supported by HSS
- Table 26 - Interfaces Supported by Application Manager
- Table 27 - Interfaces Supported by STUN and STUN Relay Server
- Table 28 - Protocols Supported by STUN and STUN Relay Server
- Table 29 - Interfaces Supported by SLF

12.2.1.2 Delta PKT-SP-33.203-I02, PKT-SP-33.210-I02, PKT-SP-33.220-I02, PKT-SP-24.229-I02, TS 33.222 Specifications

Specify your intent to comply with the “shall” requirements in the specification as they apply to each product in the proposed solution. In particular lay out the roadmap of how you intend to phase-in support for those “shall” statements that are not supported in the initial release and highlight the “shall” statements that you do not intend to support.

<Provide your response here>

In addition to the information above, please fill in the functionality tables for Core and Edge devices in the accompanying spreadsheet. The instructions for filling in the table are available in the spreadsheet. The following tables in the accompanying spreadsheet must be filled in order to complete this section.

- Table 30 - Security Methods Supported by [P, I, S]-CSCF

12.2.1.3 Scaling Characteristics

What are the scaling characteristics and limitations of your solutions? Please provide quantitative data if available (e.g., number of UEs supported, concurrent number of sessions supported, maximum session setup/teardown rates, ...). Is the data you provided based on analysis, actual measurements, or a combination of both?

<Provide your response here>

12.3 PacketCable 2.0 Application Server (AS)

In this section we are seeking information on the products that are shown in the Application block of the PacketCable 2.0 reference architecture shown in the Figure 1. The questions below pertain to the PacketCable 2.0 network products and their compliance to the PacketCable 2.0 and Application specifications. If more than one network product is being described, please indicate which product the answers pertain to and duplicate the questions as necessary to cover each of the products.

12.3.1 Description of the Application Server

<Provide brief description of each device here and then fill in the table below>

The table below is designed to understand what Application Server functions are implemented by your product. The first row (in grey) in the table provides an example. The “Application Server Function” column should contain the name of the Application Server function implemented.

Table 4 - Product Description for Application Server

Device Name	Application Server Function	Comment
ABC	Voice Call Transfer AS, Voice Call Forward Variable AS, Presence Server	The product ABC is a one box solution that supports the functions for Voice Call Transfer AS, Voice Call Forward Variable AS and Presence Server.

12.3.1.1 Delta PKT-SP-23.228-I02, PKT-SP-24.229-I02 Specifications

Specify your intent to comply with the “shall” requirements in the specification as they apply to each product in the proposed solution. In particular lay out the roadmap of how you intend to phase-in support for those “shall” statements that are not supported in the initial release and highlight the “shall” statements that you do not intend to support.

<Provide your response here>

In addition to the information above, please fill in the interface and functionality tables for Application Server (AS) in the accompanying spreadsheet. The instructions for filling in the table are available in the spreadsheet. The following tables in the accompanying spreadsheet must be filled in order to complete this section.

- Table 31 - Interfaces Supported by Application Server
- Table 32 - Functionality Supported by Application Server

12.3.1.2 PKT-SP-RSTF-I01 Specification

Specify your intent to comply with the “MUST” requirements in the specification as they apply to each product in the proposed solution. In particular lay out the roadmap of how you intend to phase-in support for those “MUST” statements that are not supported in the initial release and highlight the “MUST” statements that you do not intend to support.

<Provide your response here>

In addition to the information above, please fill in the interface and functionality tables for Application Server (AS) in the accompanying spreadsheet. The instructions for filling in the table are available in the spreadsheet. The following tables in the accompanying spreadsheet must be filled in order to complete this section.

- Table 33 - RSTF Features Supported by Application Server

12.3.1.3 Application Servers for the PacketCable 2.0 Applications Lab

Specify any other applications that are supported by the Application Server that you believe would be of significant interest to cable operators. Please provide a description of each application supported.

Table 5 – List of other applications supported by AS

Device Name	Application Name	Description

Please provide an architecture diagram showing interfaces and protocols for each application described above.

<Provide your answer here>

Please explain how these applications benefit the Cable industry. What are the benefits and how do they affect the current services offered by the Cable operators?

<Provide your answer here>

Please list the name of all PacketCable 2.0/IMS Edge and Core device vendors (e.g., CSCF, AM) with which your Application Server has successfully interoperated.

<Provide your answer here>

Do you have any plans to interoperate with other PacketCable 2.0/IMS Edge and Core device vendors (e.g., CSCF, AM) in the future that are not listed above?

<Provide your answer here>

Is there any public trial in progress or completed with any Core and Edge device vendor for this application?

<Provide your answer here>

For each application listed in Table 5 please identify the interfaces and functionality not already covered in the tables in section 12.3.1.1 and 12.3.1.2 that your Application Server supports. Please include this information in the following tables:-

- Table 48 – Additional Interfaces to Support Applications for AS
- Table 49 – Additional Functionality to Support Applications for AS

Do the applications in Table 5 impose any new requirements outside the scope of PacketCable 2.0 specifications upon the Core and Edge devices (e.g., CSCF, AM)? If so, please provide the list of new requirements on the Core and Edge devices to support each application.

<Provide your answer here>

Do the applications impose any new requirements outside the scope of PacketCable 2.0 specifications upon the client device (UE)? If so, please provide the list of new requirements on the client (UE) devices to support each application.

<Provide your answer here>

Does your company make these clients (UE) and/or do you partner with some third party vendor? Please list the name of all client (UE) vendors with which your Application Server has successfully interoperated.

<Provide your answer here>

Do you have any plans to interoperate with other client (UE) vendors in the future that are not listed above?

<Provide your answer here>

Is there any public trial in progress or completed with any client (UE) vendors for this application?

<Provide your answer here>

Do the applications require any additional network elements other than those shown in Figure 1? If so, please provide names and descriptions of any additional network elements required.

<Provide your answer here>

Does your company make these additional network elements or do you partner with some third party vendor? Please list the companies that make these additional components.

<Provide your answer here>

Are you interested in demonstrating a specific application in the PacketCable 2.0 Applications Lab at Cablelabs? If so, please identify the date of availability for each application.

<Provide your answer here>

Please include a proposal for bringing your product into the PacketCable 2.0 Applications lab that identifies the logistics, support your organization plans to provide for the application, and any other requirements that need to be met in order for your application to be showcased in the lab.

<Attach proposal to RFI response>

12.3.1.4 Scaling Characteristics

What are the scaling characteristics and limitations of your Application Servers running the various applications you propose? Please provide quantitative data if available (e.g., number of UEs supported, concurrent number of sessions supported, maximum session setup/teardown rates, ...). Is the data you provided based on analysis, actual measurements, or a combination of both?

<Provide your response here>

12.4 PacketCable 2.0 OSS Device

In this section we are seeking information on the products that are shown in the *Operation Support System* block of the PacketCable 2.0 reference architecture shown in the Figure 1. The questions below pertain to the PacketCable 2.0 OSS network products and their compliance to the PacketCable 2.0 base and Application specifications. If more than one OSS network product is being described, please indicate which product the answers pertain to and duplicate the questions as necessary to cover each of the products.

12.4.1 Description of OSS Devices

<Provide brief description of each device here and then fill the table below>

The table below is designed to understand which PacketCable 2.0 OSS network components are implemented by your product. The first row (in grey) in the table provides an example. The “Device Name” column should contain the name of the device. The “Network Element” column should list the PacketCable 2.0 OSS components (as shown in Figure 1) that are implemented by the product.

Table 6 - Product Description for OSS Blocks

Device Name	Network Element	Comment
ABC	DHCP Server, DNS Sever, PAC Server	The product ABC is a one box solution that supports DHCP Server, DNS Server and PAC Server functions.

12.4.1.1 PKT-SP-PACM-I02 Specification

Specify your intent to comply with the “MUST” requirements in the specification as they apply to each product in the proposed solution. In particular lay out the roadmap of how you intend to phase-in support for those “MUST” statements that are not supported in the initial release and highlight the “MUST” statements that you do not intend to support.

<Provide your response here>

In addition to the information above, please fill in the interface and functionality tables for OSS function devices in the accompanying spreadsheet. The instructions for filling in the table are available in the spreadsheet. The following tables in the accompanying spreadsheet must be filled in order to complete this section.

- Table 34 - Protocols Supported by DHCP Server
- Table 35 - Protocols Supported by DNS Server
- Table 36 - Protocols Supported by Time Server
- Table 37 - Protocols Supported by PAC Server
- Table 38 - Interfaces Supported by EMS & NMS Server

12.4.1.2 PKT-SP-RST-ACCT and PKT-SP-ACCT-I02 Specifications

Specify your intent to comply with the “MUST” requirements in the specification as they apply to each product in the proposed solution. In particular lay out the roadmap of how you intend to phase-in support for those “MUST” statements that are not supported in the initial release and highlight the “MUST” statements that you do not intend to support.

<Provide your response here >

In addition to the information above, please fill in the interface and functionality tables for CDF/CGF in the accompanying spreadsheet. The instructions for filling in the table are available in the spreadsheet. The following tables in the accompanying spreadsheet must be filled in order to complete this section.

- Table 39 - Interfaces Supported by CDF/CGF Server

12.4.1.3 Compliance to PacketCable 2.0 Application Specifications

PacketCable2.0 application specifications can be found at <http://www.packetcable.com/specifications/packetcableapps.html>

12.4.1.4 PKT-SP-RST-PACM-I01 Specification

Specify your intent to comply with the “MUST” requirements in the specification as they apply to each product in the proposed solution. In particular lay out the roadmap of how you intend to phase-in support for those “MUST” statements that are not supported in the initial release and highlight the “MUST” statements that you do not intend to support.

<Provide your response here>

12.4.1.5 Scaling Characteristics

What are the scaling characteristics and limitations of your OSS solution? Please provide quantitative data if available (e.g., number of UEs supported, number of devices provisioned per unit of time, ...). Is the data you provided based on analysis, actual measurements, or a combination of both?

<Provide your response here>

12.5 PACKETCABLE 2.0 INTERCONNECT Function

In this section we are seeking information on the products in your proposed solution that implement the functions shown in the *Interconnect* functional grouping of the PacketCable 2.0 reference architecture shown in the Figure 1. If more than one network product is being described, please indicate which product the answers pertain to and duplicate the questions as necessary to cover each of the products.

12.5.1 Description of Devices

Please complete the following table to describe how your product(s) support the PacketCable 2.0 Interconnect function. The first row (in grey) of the table gives an example. The “Device Name” column should contain the name of your device or product. The “Network Element” column should list the PacketCable 2.0 network components (as shown in Figure 1) that are implemented by the

product. Note: If the device also implements network components outside of the Interconnect function, please list them as well.

<Provide brief description of each device here and then fill in the table below>

Table 7 - Interconnect Block Product Description

Device Name	Network Element	Comment
ABC	MGC, BGCF, Border Element	The product ABC is a one box solution that supports the MGC, BGCF, and Border Element functions on the PacketCable 2.0 network.

12.5.1.1 Delta PKT-SP-24.229-I02 and PKT-SP-CMSS1.5-I04 Specifications

Specify your intent to comply with the “shall” and “MUST” requirements in the delta PKT-SP-24.229-I02 and PKT-SP-CMSS1.5-I04 specifications as they apply to each product that supports the PacketCable 2.0 Border Element (aka IMS-ALG), BGCF, and the PacketCable 1.5 CMS and MGC network elements in the proposed solution. In particular lay out the roadmap of how you intend to phase-in support for those “shall” and “MUST” statements that are not supported in the initial release and highlight the “shall” and “MUST” statements that you do not intend to support.

<Provide your response here>

In addition to the information above, please fill in the interface and functionality tables in the accompanying spreadsheet. The instructions for filling in the table are available in the spreadsheet. The following tables in the accompanying spreadsheet must be filled in order to complete this section.

- Table 40 - Interfaces Supported by Interconnect Function
- Table 41 - SIP Extensions Supported by BGCF
- Table 42 - SIP Extensions Supported by Border Element
- Table 43 - SIP Extensions Supported by CMS and MGC

12.5.1.2 Scaling Characteristics

What are the scaling characteristics and limitations of your interconnect solutions? Please provide quantitative data if available (e.g. concurrent number of sessions supported, maximum session setup/teardown rates, ...). Is the data you provided based on analysis, actual measurements, or a combination of both?

<Provide your response here>

12.6 PACKETCABLE 2.0 – PacketCable Multimedia Function

In this section we are seeking information on the products in your proposed solution that implement the functions shown in the *PacketCable Multimedia* functional grouping of the PacketCable 2.0 reference architecture shown in the Figure 1. If more than one PacketCable Multimedia network product is being described, please indicate which product the answers pertain to and duplicate the questions as necessary to cover each of the products.

12.6.1 Description of Devices

<Provide brief description of each device here and then fill in the table below>

The table below is designed to understand what PacketCable 2.0 network components are implemented by your product. The first row (in grey) in the table provides an example. The “Device Name” column should contain the name of the device. The “Network Element” column should list the PacketCable 2.0/PacketCable Multimedia network components (as shown in Figure 1) that are implemented by the product.

Table 8 - Product Description for PacketCable Multimedia function

Device Name	Network Element	Comment
ABC	Policy Server and Application Manager	The product ABC is a one box solution that supports the Policy Server and Application Manager.

12.6.1.1 PKT-SP-MM-I03 and PKT-SP-CPD-I02 Specifications

Specify your intent to comply with the “MUST” requirements in the PKT-SP-MM-I03 and PKT-SP-CPD-I02. In particular lay out the roadmap of how you intend to phase-in support for those “MUST” statements that are not supported in the initial release and highlight the “MUST” statements that you do not intend to support.

<Provide your response here>

In addition to the information above, please fill in the interface and functionality tables for Policy Server (PS) in the accompanying spreadsheet. The instructions for filling in the table are available in the spreadsheet. The following tables in the accompanying spreadsheet must be filled in order to complete this section.

- Table 44 - Interfaces Supported by Policy Server
- Table 450 - Functionality Supported by Policy Server

12.6.1.2 Scaling Characteristics

What are the scaling characteristics and limitations of your PacketCable Multimedia solutions? Please provide quantitative data if available (e.g., concurrent number of sessions supported, maximum session setup/teardown rates, ...). Is the data you provided based on analysis, actual measurements, or a combination of both?

<Provide your response here>

13 PRODUCT TIMELINES

13.1 Equipment Trials and/or Deployments

Please describe any publicly known equipment testing trials (past or current).

<Provide response here>

Please describe any publicly known deployments (past or current) using your product(s).

<Provide response here>

13.2 Previous Integration and Interoperability

Please list and describe any publicly known integration/interoperability with other component developers of 3GPP/IMS or PacketCable 2.0 related architectures. Please list the company, the related components (yours and theirs), and the related interfaces used (in terms of 3GPP/IMS or PacketCable 2.0 interface definitions).

<Provide response here>

13.3 Product Development Roadmap and Timeline

13.3.1 IMS/3GPP

What is the current IMS version compliance level for your product(s)? Specifically, does your product development focus on a specific release of the 3GPP specifications (please state which release)?

<Provide response here>

Does your product development roadmap anticipate compliance with R6, R7, or R8 3GPP releases in the future? If so, which 3GPP releases and by what date?

<Provide response here>

13.3.2 PacketCable 2.0 and PacketCable Applications

What is your current compliance level to the PacketCable 2.0 IMS delta specifications? Specifically, does your product currently adhere to any or all of the current PacketCable 2.0 delta specifications?

<Provide response here>

Does your development roadmap anticipate compliance with any or all PacketCable 2.0 IMS delta specifications? If so, which specifications and by what date?

<Provide response here>

Does your product development roadmap anticipate compliance with the PacketCable Cellular and Wireless integration specification? If so, what is your timeline for compliance to this specification?

<Provide response here>

Does your product development roadmap anticipate compliance with the PacketCable Residential SIP Telephony specification? If so, what is your timeline for compliance to this specification?

<Provide response here>

13.4 Certification/Qualification Testing

The CableLabs certification roadmap for PacketCable 2.0 and PacketCable Residential SIP Telephony is targeting the following timeframes for certification/qualification:

- Ready to certify Embedded Digital Voice Adapters (E-DVAs) in Q1 '07
- Ready to qualify Residential SIP Telephony (RST) Application Servers by Q4 '07
- Ready to qualify the P-CSCF, S-CSCF, and I-CSCF as a single entity by Q1 '08

Do these timeframes align with your product development timelines? If not, please explain.

<Provide response here>

Which components within your PacketCable 2.0 or PacketCable Residential SIP Telephony product do you think should be tested for certification/qualification? Please list all components and a brief description of why you feel it is important to certify/qualify that component.

<Provide response here>

Do you plan to submit your product for PacketCable 2.0 or PacketCable Residential SIP Telephony Certification/Qualification?

<Provide response here>

If so, by what date do you anticipate your product to be ready for submission to CableLabs Certification/Qualification testing against the PacketCable 2.0 or PacketCable Residential SIP Telephony set of specifications?

<Provide response here>

14 NETWORK INTEGRATION

Can any of your PacketCable 1.5 components be upgraded to support 2.0 functionality? For example, can a PacketCable 1.5 E-MTA be upgraded (say, via software download) to support PacketCable 2.0 UE functionality, or can a CMS be upgraded to support an S-CSCF or an Application Server?

<Provide response here>

In general, and including network diagrams as appropriate, for operators who already have significant PacketCable 1.5 deployments, what would be your recommendation for an operationally smooth and economic strategy for deploying PacketCable 2.0? What are the key issues that operators need to consider and how would your proposed strategy address them?

<Provide response here>

For existing PacketCable 1.5 voice subscribers, would you recommend a migration plan to PacketCable 2.0 RST or a coexistence plan with SIP based PacketCable RST subscribers. If you recommend migration, does your proposed solution support any specific procedures to ensure seamless migrating of users from PacketCable 1.5 to 2.0? For example, how are user services and call routing validated in the 2.0 network before migration occurs? Specify any features or services that may be impacted by the migration (e.g., for users who are migrating from 1.5 to 2.0, is there an outage interval and if yes how long is it? How are in-progress emergency calls handled?).

<Provide response here>

Does your proposed solution support any specific procedures to provide (possibly reduced) service when interworking with other network elements that only partially comply with the PacketCable specifications?

<Provide response here>

Please describe how your solution supports call routing in an environment where a single operator has deployed PacketCable 1.5 and 2.0 networks serving users that are assigned directory numbers within the same number space and randomly distributed across both networks.

<Provide response here>

Does your solution have any current or planned capabilities that would enable an operator to share common resources between a PacketCable 1.5 and 2.0 network; say where both networks share the same routing database, media servers (voice-mail, conference bridge, etc), or Application Servers?

<Provide response here>

Please provide details on how your SIP service infrastructure scales, including load balancing, redundancy, and server failover information.

<Provide response here>

Please describe your plans and roadmap for providing new capabilities and services beyond those currently specified in PacketCable 2.0 (e.g., presence, ENUM, multiple registered instances, hi-fidelity codecs, etc).

<Provide response here>

15 COST MODELS

CableLabs requests list pricing information for the products you have identified in your response to this RFI in order to better assess the economic characteristics of the PacketCable 2.0 architecture, including scaling dynamics and transition strategies.

Please indicate your list pricing for the various network and UE components you have identified in your response to this RFI. If the pricing varies based on number of subscribers served, please include the details in your response.

<Provide response here>

Please provide your list pricing for ongoing software maintenance and upgrades as related to software updates, future subscriber growth, and network expansion.

<Provide response here>

Describe, if possible, pricing implications for the breakdown of PacketCable 2.0/IMS components. In other words, as operators initially deploy and then scale their PacketCable 2.0 networks, what are the key cost drivers?

<Provide response here>
