

Work Plan for Localizing Transmissions

This Work Plan for Localizing Transmissions (“Work Plan”) will be carried out by the DTLA and its content participants, Warner Bros. and Sony Pictures (collectively, “Content Participants”). The purpose of this Work Plan is to address and determine (a) improved methods for “localization,” *i.e.*, restricting access to DT Data within the home or other, similar local environment (*i.e.*, the “home and personal network” as defined in Section 3.7(a) of the Content Participant Agreement), for network topologies that may include DTCP over IP; (b) the technical and commercial feasibility of detecting and/or frustrating encapsulation of DTCP protected data; and (c) an appropriate implementation timetable for the method and/or technology selected to address the implementation of these methods (in whole or in part) consistent with the DTLA Adopter Agreement. This Work Plan consists of a “Phase One” accelerated examination of a known approach based on “round trip time” or “RTT,” to be followed by a “Phase Two” evaluation of alternative or revised approaches. Phase Two may be initiated up to a total of two times. It is important to note that various factors may affect successful completion of each step in the overall process in the contemplated time frames. If at any point it appears that a particular time frame will not be achievable, DTLA and Content Participants agree to work in good faith to establish a revised timeframe. Each of the steps below may involve consultation with other CE, IT and/or Content companies.

Problem Statement: A fundamental purpose of DTCP is to enable protection of data distributed across a home or personal network. Content Participants desire to “localize” the scope of DTCP transmissions to home and personal networks, independent of data link technology; separately controlled remote access to such networks is not precluded by such localization, but is expected to be subject to additional mechanisms. All digital data (including but not limited to DTCP protected data) can be “encapsulated,” regardless of its original digital transport, and may, in the future, be redistributed in a manner that allows content to be sent outside the home or personal network in contravention of a fundamental purpose of DTCP. Encapsulation occurs when one protocol transporting DTCP protected data is carried by another protocol in a manner transparent to the first protocol.

Phase One:

Phase One Objective: DTLA and Content Participants shall define an RTT mechanism as an extension to the existing DTCP authentication protocol. This mechanism shall be capable of determining the round trip latency between a DTCP source and sink device pair in a manner whose integrity is securely protected and does not depend on modifications to network or other infrastructure beyond the DTCP source and sink device. DTLA and Content Participants shall establish a specific numerical threshold time t (which may differ for different transports) and measurement methodology that permits the exchange of content across foreseeable home network topologies while frustrating wide-area connections. In the event that Phase Two of the Work Plan does not yield a more effective technical means to address localization and encapsulation within an acceptable time frame, this RTT mechanism will, at the end of the second iteration of Phase 2, for DTCP over IP, and for those transports for which it is deemed

reasonable and feasible under Phase One Step 2 of this Work Plan, be incorporated in the DTCP specification for new adopters and for existing adopters that elect to implement DTCP over IP; and, consistent with the Adopter Agreement, for other existing Adopters, provided that such obligations may be limited for existing Adopters to new model products.

Phase One Process: The parties shall dedicate sufficient technical resources to study, over IP with Ethernet and wireless Ethernet (Step 1) and non-IP transports (IEEE1394, USB and MOST) (Step 2) the propagation of DT Data via DTCP using all approved digital output methods, and the settings of RTT necessary to facilitate such propagation, while localizing transmissions and offering sufficient protection against the threat of encapsulation. The study will take into account the following assumptions:

- i. Before transfer of data is permitted over a DTCP link an RTT determination must be made that yields an RTT less than or equal to t .
- ii. The RTT is determined empirically from the time it takes to complete a secure authenticated handshake (that shall contain a nonce) between the source and sink devices.
- iii. There is no limit on the number of retries that a source device can make to determine an RTT value of less than or equal to than t .
- iv. For reasonable network topologies and configurations, the impact to consumer-perceptible performance of conducting multiple RTT measurements shall be considered when determining t .

Such studies will evaluate the reliability and frequency of achieving particular RTT settings within minimum, average and maximum ranges. As a result of these studies, the parties will reasonably select an appropriate setting for RTT, t , that is the smallest value that can be obtained that accommodates local distribution and transmission of DT Data over IP with Ethernet and wireless Ethernet (Step 1) and non-IP transports (Step 2) under various environments and device implementations. The parties also may determine whether a different value for t may be appropriate for IP transports other than Ethernet and wireless Ethernet. The analysis in Steps 1 and 2 of Phase One may involve consultation with other CE, IT and/or Content companies.

Phase One Step 1: Determine threshold time t to implement RTT for DTCP over IP with Ethernet and wireless Ethernet home network topologies.

Phase One Step 1 Objective: In determining the threshold time t , DTLA and Content Participants will evaluate the commercial and technical reasonableness of t , including but not limited to effectiveness and effect on consumers.

Phase One Step 1 Timeframe: Step 1 shall be completed no later than November 17, 2003.

Phase One Step 2: Analysis of implementations of RTT for DTCP over approved network topologies/mappings other than IP, namely 1394, USB and MOST.

Phase One Step 2 Timeframe: Step 2 shall be completed within 16 weeks of successful completion of Step 1, or such other time frame as the parties may agree, subsequent to the completion of Step 1.

Phase One Step 2 Objective: DTLA and Content Participants will evaluate the commercial and technical reasonableness of requiring Licensed Products to implement RTT for mappings of DTCP in addition to IP. This evaluation shall include an analysis to determine whether or not the value of t determined in Step 1 for DTCP over IP with Ethernet and wireless Ethernet is appropriate for these other mappings, on a mapping by mapping (*i.e.*, individual) basis.¹

Phase One Step 2 Process: DTLA and Content Participants will consider in their analysis the cost of design and implementation of an RTT-based solution, the likely ability of Adopters to successfully implement RTT, effectiveness, effect on consumers. DTLA and Content Participants will consider the issue of “grandfathering” existing models of products and compatibility/interoperability of DTCP applications.

As part of this Step 2, the parties shall determine whether or not the value of t determined in Step 1 for DTCP over-IP with Ethernet and wireless Ethernet is reasonable and feasible for the approved mappings other than IP, on mapping by mapping basis. Based on an analysis of the characteristics the underlying transports to which DTCP is mapped, the specific value of t for such transports may be increased or decreased. Any modification would take into account the unique attributes of a given transport to obtain the smallest value which localizes traffic and accommodates reasonable network topologies.

Default: In the event that the parties do not successfully complete Phase Two of the Work Plan, promptly upon the conclusion of the second iteration of Phase Two, DTLA shall issue a revised Specification requiring, after 18 months (or such longer period as DTLA and Content Participants may agree), that new Adopters, and existing Adopters that elect to implement DTCP over IP, implement (a) the RTT mechanism as determined in Step 1 for DTCP over IP and (b) RTT mechanism(s) as determined in Step 2 for other approved mapping(s)/implementation(s) of DTCP determined under Step 2; *provided that* the parties also may agree to issue such Specification change incorporating RTT for some or all of such Licensed Products or DTCP mappings prior to, or after successful completion of, Phase Two.

If, at the conclusion of Phase One, DTLA and Content Participants agree that no further work is necessary in connection with this Work Plan, then DTLA shall issue the revised

¹ For purposes of this sentence, commercial and technical reasonableness will take into account both effectiveness and cost. DTLA and Content Participants acknowledge that a commercially and technically reasonable solution for implementation of RTT for non-IP mappings may involve commercial costs, including the possible costs of chip re-design and of associated changes in manufacturing, and may not be as effective as the RTT implementation for DTCP over IP.

Specification as contemplated above at the conclusion of Phase One and, in such event, the Work Plan shall be deemed completed and Phase Two shall not be performed.

Phase Two:

Phase Two Step 1

Phase Two Step 1 Timeframe: Step 1 shall be completed within [13] weeks of completion of Phase One of the Work Plan or Step 2 of the previous iteration of this Phase of the Workplan, as the case may be.

Phase Two Step 1 Objective: DTLA and Content Participants will meet on a regular basis as they may agree, and each will contribute engineering and policy expertise to the effort. Assignments will be fairly allocated among them as the parties may agree. DTLA and Content Participants will evaluate the technical options for achieving more effective localization of distribution and transmission of DT Data within the home or personal network, using methods other than RTT (or refinement of the RTT solution contemplated in Phase One); and of detecting and/or frustrating encapsulation of DTCP protected data in light of generally available technologies known at the time of evaluation. Candidate methods and technologies must use digital interconnection technologies “as is” and not require that network functions other than Source or Sink Functions be aware of DTCP. That is, implementation of candidate methods and technologies should be strictly limited to DTCP Source and Sink Functions to the fullest extent possible. In addition, candidate methods and technologies must be capable of being implemented in a manner consistent with the DTLA Adopter Agreement (backward compatibility, interoperability, etc.).

Phase Two Step 1 Process: If the parties conclude that it is not then currently technically feasible to achieve enhanced localization, or to detect and/or frustrate encapsulation and retransmission of DTCP protected data in light of generally available technologies known at the time of evaluation, DTLA and Content Participants will set a timetable to revisit this Step 1 as part of a subsequent cycle of this work plan.

When DTLA and Content Participants agree that it is technically feasible to achieve enhanced localization, and/or to detect and/or frustrate encapsulation of DTCP protected data using methods and/or technologies generally available at the time of evaluation, the parties will proceed with Step 2.

Phase Two Step 2

Phase Two Step 2 Timeframe: Step 2 shall be completed within 26 weeks of successful completion of Step 1, or such other time frame as the parties may agree, subsequent to the completion of Step 1.

Phase Two Step 2 Objective: DTLA and Content Participants will evaluate technical solutions that can reasonably and effectively be implemented so that Licensed Products enhance localization of transmission and distribution of DT Data, and detect and/or frustrate

encapsulation of DTCP protected data in a manner designed to maintain the integrity and security of DTCP, in each case as contemplated at the conclusion of Step 1 of Phase 2.

Phase Two Step 2 Process: DTLA and Content Participants will consider in their analysis the cost, effectiveness, effect on consumers, availability of alternative solutions, likely ability of Adopters to successfully implement, enforceability and any contractual or other constraints. This analysis may involve consultation with other CE, IT, and/or Content companies.

If, in the first iteration of this Work Plan, DTLA and Content Participants conclude that it is not then reasonable to require that Licensed Products be designed to use particular methods to enhance localization or to frustrate and/or detect encapsulation of DTCP protected data, the parties will set a timetable to revisit this Step 2.

When DTLA and Content Participants determine that it is reasonable to require Licensed Products to be designed to enhance localized distribution and transmission of DT Data and to detect and/or frustrate encapsulation of DTCP protected data in a manner designed to maintain the integrity and security of DTCP, DTLA in consultation with Content Participants will amend the DTCP Specification to add the requirement for new adopters and for existing adopters that elect to implement DTCP over IP; and, consistent with the Adopter Agreement, for other existing Adopters, provided that such obligations may be limited for existing Adopters to new model products. DTLA will, in consultation with Content Participants, establish a commercially reasonable implementation deadline consistent with the DTLA Adopter Agreement.