Circuit Switched Data Service (CSDS)

Circuit Switched Data Service (CSDS) is the modern evolution of the circuit-switched networks first developed in 1878. Circuit switching technology was initially used to reserve dedicated channels (i.e., circuits) for private phone conversations, but is now used for voice, video and file transmissions.

EIS CSDS is a totally digital service, and is offered at standard data rates ranging from 56 Kbps (DS0) to 1.5 Mbps (DS1). Higher data rates, which may not be offered by all contractors, range from 3 Mbps (2 x DS1) to 594 Mbps (4 x OC-3c).

NOTE: EIS contract Section B.2.2.4 Circuit Switched Data Service only includes the DS0 data rate; a Task Order Unique CLIN (TUC) would be needed to obtain higher transport speeds.

Category: Voice Service

Complementary Services Needed: In order to use CSDS, the agency would need the following EIS service or equivalent: Access Arrangements (AAs).

Definitions: Please see EIS contract Section J.12 Glossary of Terms for clarification of technical terms and acronyms.

Figure 1—Circuit Switched Data Service
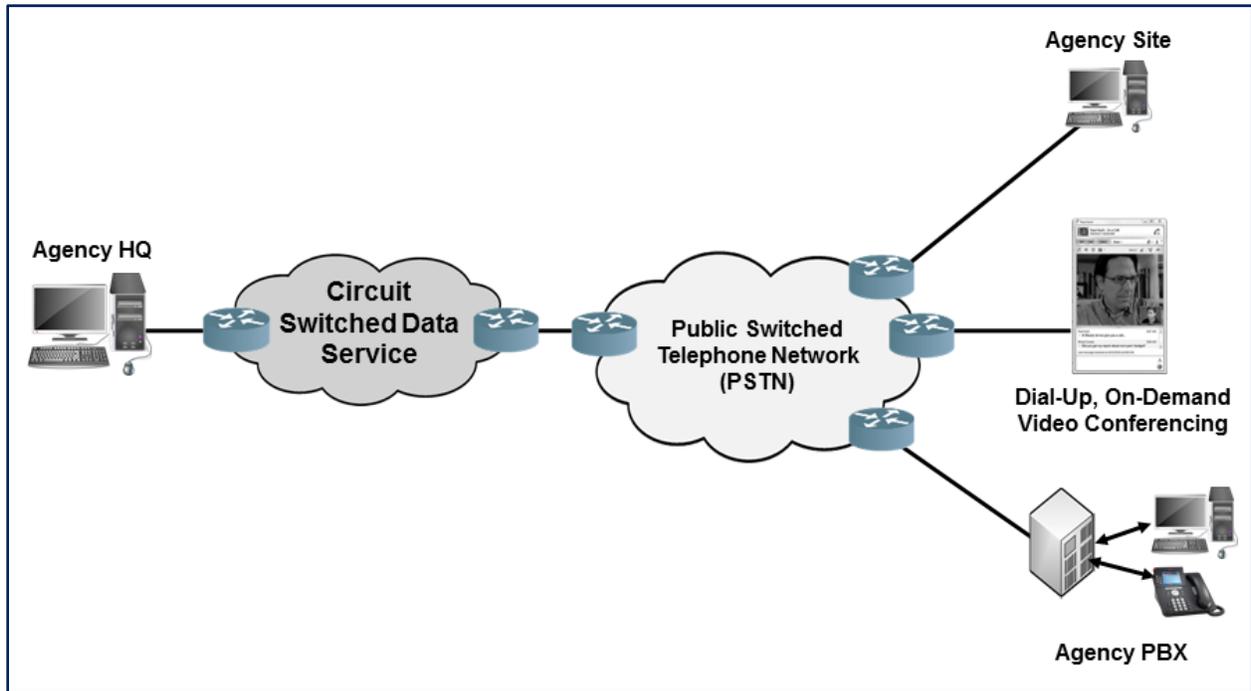
1. Why an Agency Might Select CSDS

- CSDS can provide agencies with alternative circuit-switched paths in the event of an emergency or disaster.

- CSDS provides high quality voice transport using a mature, proven technology that does not have the latency problems that sometimes impact Voice Over IP solutions.

- CSDS can be used for intra-agency or inter- agency LAN-to-LAN and WAN-to-WAN data transmissions.

- The digital connectivity provided by CSDS supports high bandwidth applications, such as on-demand videoconferencing.

- CSDS provides high performance and reliability necessary for agency video store-and-forward applications.

NOTE: Agencies considering this service may also want to compare it with other EIS Data Services such as Ethernet Transport Service (ETS) or Synchronous Optical Network Service (SONETS).

2. Examples of How CSDS Could be Used

- **Continuity of Operations (COOP):** CSDS could be used as part of an agency's COOP planning, as it automatically determines alternative circuit paths.
- **Data Security:** An agency could use CSDS to limit data exchanges with a particular server. (CSDS reserves a dedicated channel for the user, but once the user hangs up the phone—indicating the transmission has been completed—the circuit is disconnected.)
- **Dedicated Bandwidth and Channel:** Using CSDS, an agency could establish a direct, dedicated connection to an Internet Service Provider (ISP) for unrestricted access to the Internet and faster download times.

- **Dedicated Backup :** An agency could use CSDS for dedicated back-up and data replication between remote systems.

- **File Transfer:** CSDS can be used for intra-agency or inter-agency critical data applications such as file transfers and software downloads.

3. Key Technical Specifications

NOTE: This portion of the service guide has been abridged due to space considerations. For full technical details on CSDS, please refer to EIS contract Section C.2.2.4 Circuit Switched Data Service.

Table 1—CSDS Technical Capabilities

Capability	Description
Uniform Numbering Plan (UNP)	UNP provides: 1. A unique directory number for all on-net government locations. 2. Same uniform numbering plan as proposed for VS and which is integrated with the VS plan (See Section C.2.2.2.1.4).
Authorization Codes for CSDS	Authorization codes for CSDS will be the same as those specified for VS (see Section C.2.2.2.2 Features, ID Number #2, Authorization Codes/Calling Cards).
Calls Terminating to Off-Net Locations	Bandwidth requested by the originating on-net location will be limited to the bandwidth limitations in the PSTN between the contractor's network and the called location.
Non-Scheduled Calling Capability	Calling capability that does not require scheduling
Network-Derived Clocking	Provision of network-derived clocking to the DTE or PBX/Multiplexer (MUX) at the SDP.
Bit Sequences Transmission	Following call establishment, all bit sequences transmitted by the DTE are transported as data/bit transparent, and maintain data/bit sequence integrity.
Dialable Information-Payload Bandwidth	Standard bandwidths are as follows: 1. DS0: 56 Kbps and 64 Kbps 2. DS1: 1.536 Mbps 3. Multirate DS0: 1 to 24 times DS0 (1.536 Mbps to 36.864 Mbps) **The following bandwidths may not be offered by all EIS contractors:** 1. Multirate DS1: 1 to 27 times DS1 (1.536 to 41.472 Mbps) 2. DS3: 43.008 Mbps 3. SONET Level-I (OC-1): 49.536 Mbps 4. SONET Level-II (Multirate OC-1): 1 to 3 times OC-1 (49.536 to 148.608 Mbps) 5. SONET Level-III (Multirate OC-3): 1 to 4 times OC-3c (148.608 to 594.432 Mbps)

Table 2—CSDS Features

Feature	Description
Dial-In	Toll-free numbers are supported in addition to 10-digit PSN numbers, for dial-in access from off-net locations (i.e., PSN) via ISDN access arrangement. Access to CSDS is provided only after verification of the authorization code entered by the user.
User-to-User Signaling Via ISDN D-Channel	User-to-user signaling via ISDN D-channel during a call is supported in accordance with ANSI T1 and ITU-TSS standards for ISDN and SS7.

4. Pricing Basics for CSDS

Please visit the EIS Resources Listing and locate the Basic EIS Pricing Concepts Guide to gain an understanding of EIS pricing fundamentals.

4.1 Access Arrangements

Appropriate access arrangements must be selected for each endpoint. Please visit the EIS Resources Listing and locate the Access Arrangements Guide for more detailed information.

4.2 Service Related Equipment (SRE)

- SRE must be chosen based on equipment required at each location. NOTE: SRE uses catalog-based pricing.

- Request that contractor provide pricing for any SRE that would be required, in addition to the agency's existing infrastructure, to deliver the service.

- Please visit the EIS Resources Listing and locate the Service Related Equipment Service Guide for more detailed information.

4.3 CSDS Price Components

The price structure for CSDS consists of the components shown in *Table 3* below.

Table 3—CSDS Pricing Components

Component	Charging Unit
Transport	Per six-second increment
Features	Per unit name

Figure 2 below shows how the pricing components in *Table 3* are combined to produce the total cost for the service.

NOTE: Access to CSDS is comes in two versions: Switched Access and Dedicated Access. There is no Access pricing element in Table 3 because: (a) Switched Access is not separately priced; the fee is included into the Transport charges; and (b) Dedicated Access is priced separately as an Access Arrangements.

Figure 2—This figure shows how the various pricing components in Table 3 would be combined to calculate the total CSDS charges. NOTE: One or more of these components may not be needed to price a particular service package.
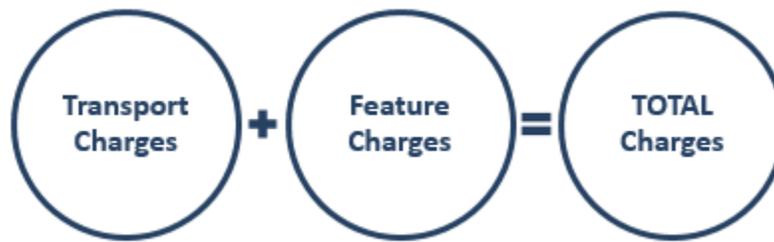
The charges for the different components in *Figure 2* are calculated using details provided in the pricing tables in EIS contract Section B.2.2.4 Circuit Switched Data Service. (Please visit the EIS Resources Listing and locate the Service Related Equipment Service Guide for instructions on using the pricing tables to compute the cost of a service.)

NOTE: A contractor may offer a custom variation of the service to meet an agency's unique requirements. Such a customization would be identified with a Task Order Unique CLIN (TUC), and would include charges that would have to be added to the components in *Figure 2* to determine the total cost of the service.
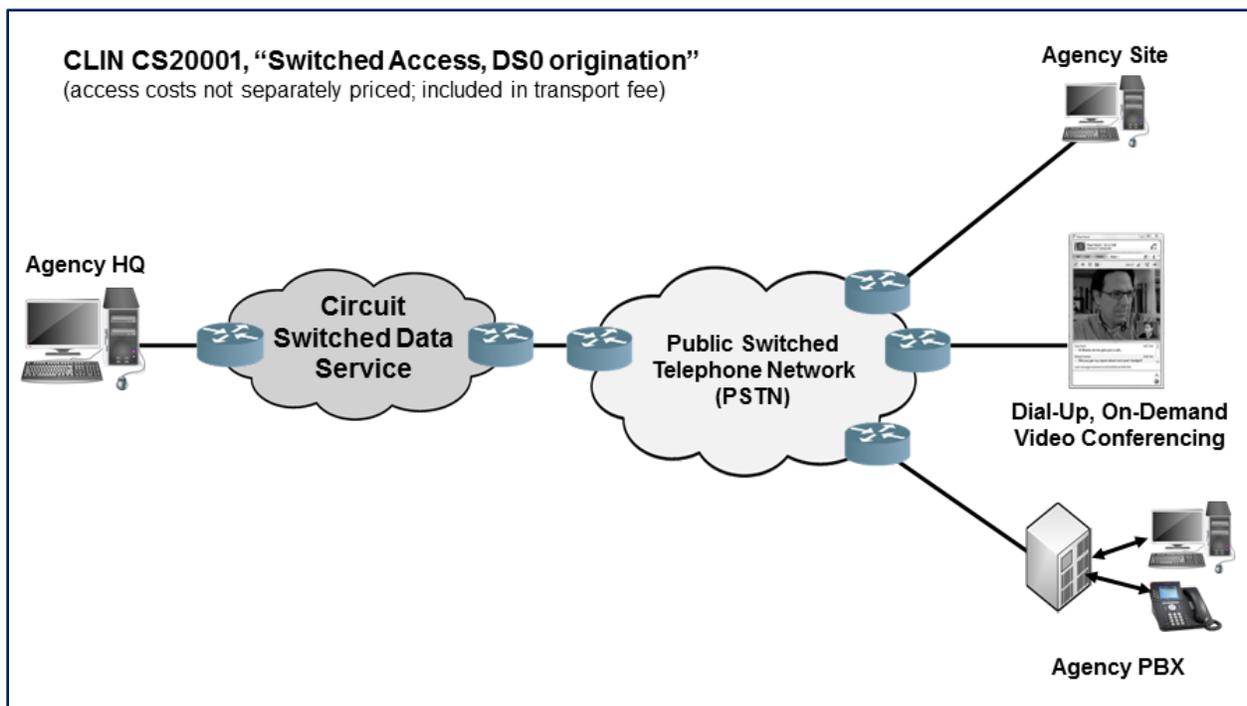
4.4 CSDS Pricing Example

Example: DS0 Switched Access

Service CLINs

- Choose CLIN CS20001, "Switched Access, DS0 origination" (see EIS contract table *B.2.2.4.3.6 – Circuit Switched Data Service Pricing Instructions Table*).

  NOTE: Access costs are not separately priced; they are included in Transport pricing.

Figure 3—CSDS with DS0 Switched Access

5. References and Other Sources of Information

- For more technical details and information on CSDS, please refer to EIS contract <u>Section C.2.2.4</u>; for pricing details, <u>Section B.2.2.4</u>.

- For more information on service-related items, please see:

  o EIS contract <u>Section B.2.10 Service Related Equipment</u>

  o EIS contract <u>Section B.2.11 Service Related Labor</u>

- Please refer to a contractor's individual EIS contract for specifics on the contractor's CSDS offerings.

- For additional EIS information and tools, visit the <u>EIS Resources Listing</u>.

- For guidance on transitioning to EIS, please visit <u>EIS Transition Training</u> where you'll find several brief video training modules.