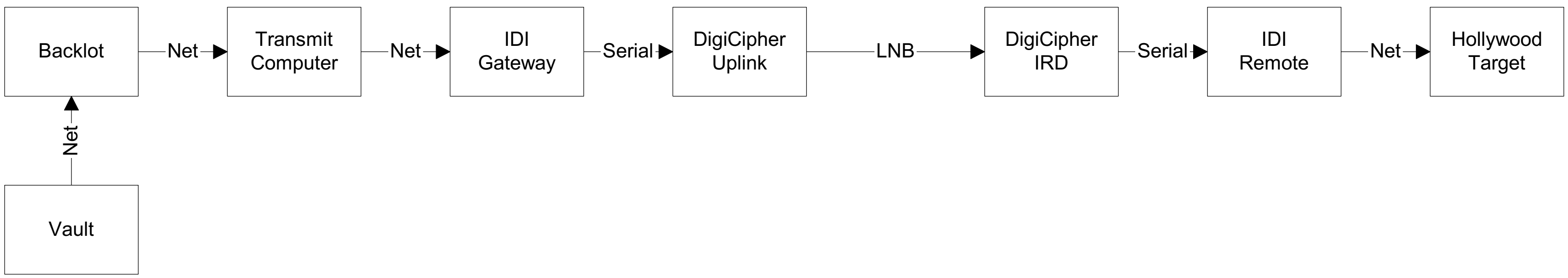
A

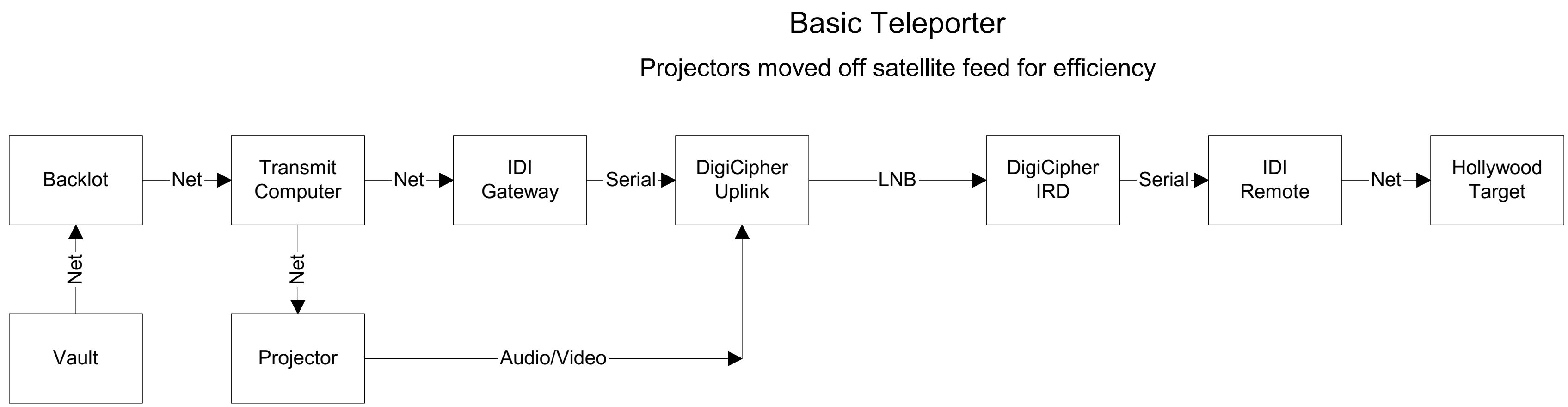
Due to the confusion which has surrounded the network and other infrastructure requirements for the Teleporter system, this document attempts to show the basic system and how it evolves into a more complex system as efficiencies and redundancies are added to the mix. The following five diagrams show progressively more complex forms of the same system, explaining what is different from the previous diagram. Any of these configurations could be used for operating the system, but the more complex systems offer greater fault tolerance through the use of redundant components. Note that the arrows designate the flow of the primary data to be transmitted; on network segments ACK packets and the like may flow in the opposite direction. Also note that these are physical connections; they do not deal with ip addressing schemes, ATM clouds, etc. Those implementation details must be worked out once the physical connections and other requirements of the system are understood.

Basic Teleporter



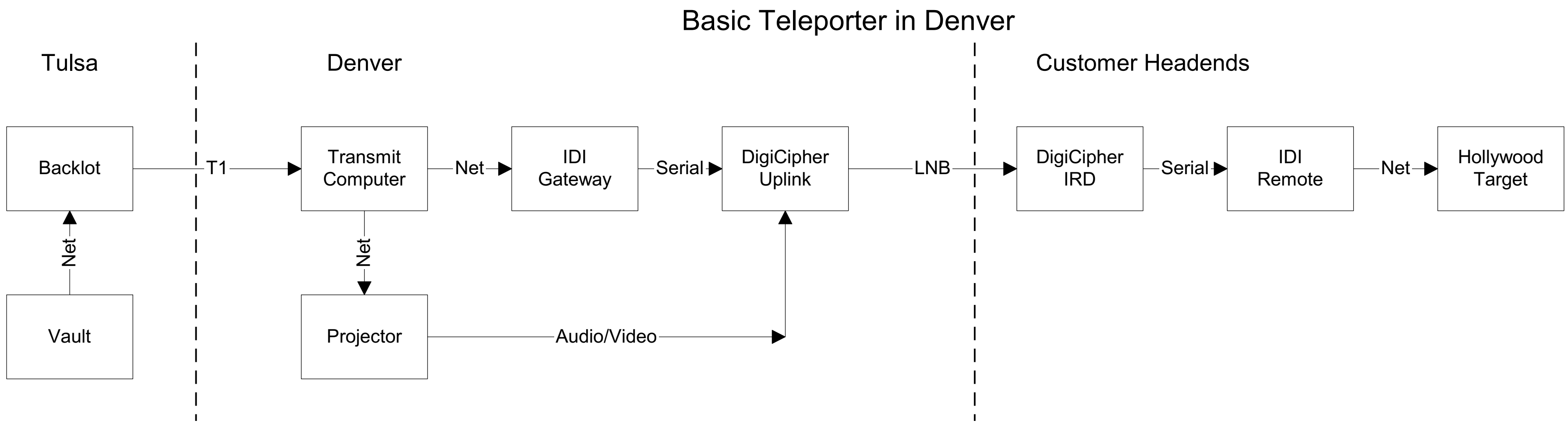
This system is currently running in Tulsa. The LNB line is simply a frequency converter; no actual transmission or reception to or from satellite is being done. Each connection is a discrete connection, without any connection to the corporate network with the exception of the Backlot and Vault. Those two machines and one side of the Transmit Computer are connected through the corporate network. The Hollywood Targets used by developers also have another network card which connects them to the corporate network for development purposes. However, these connections are irrelevant to the Teleporter system. The projectors are treated the same as targets; they receive data from the LNB feed.

B



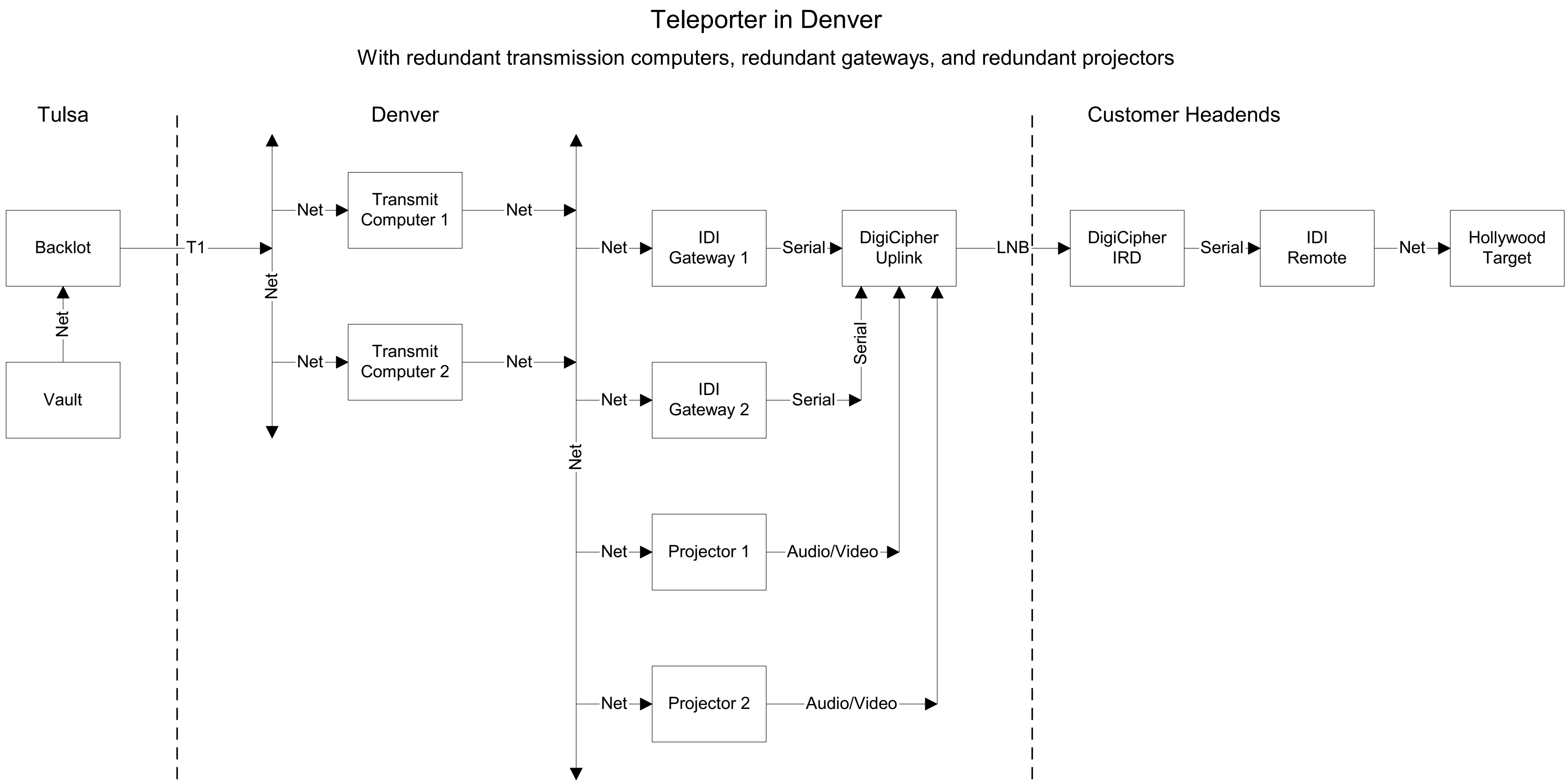
The only change in this system is that the projectors have been moved off the LNB feed, which has a limited bandwidth, to a network connection. This allows large MPEG files to be sent to the projectors without impacting the limited bandwidth over the DigiCipher. In order to accomplish this without putting an excessive amount of traffic on the corporate network, one of two things needs to happen: 1.) a separate network must be built which connects the projectors and the transmit computer or 2.) the projectors and transmit computer traffic must be isolated from other traffic on the corporate network (e.g. using switches, ATM clouds, etc.)

C



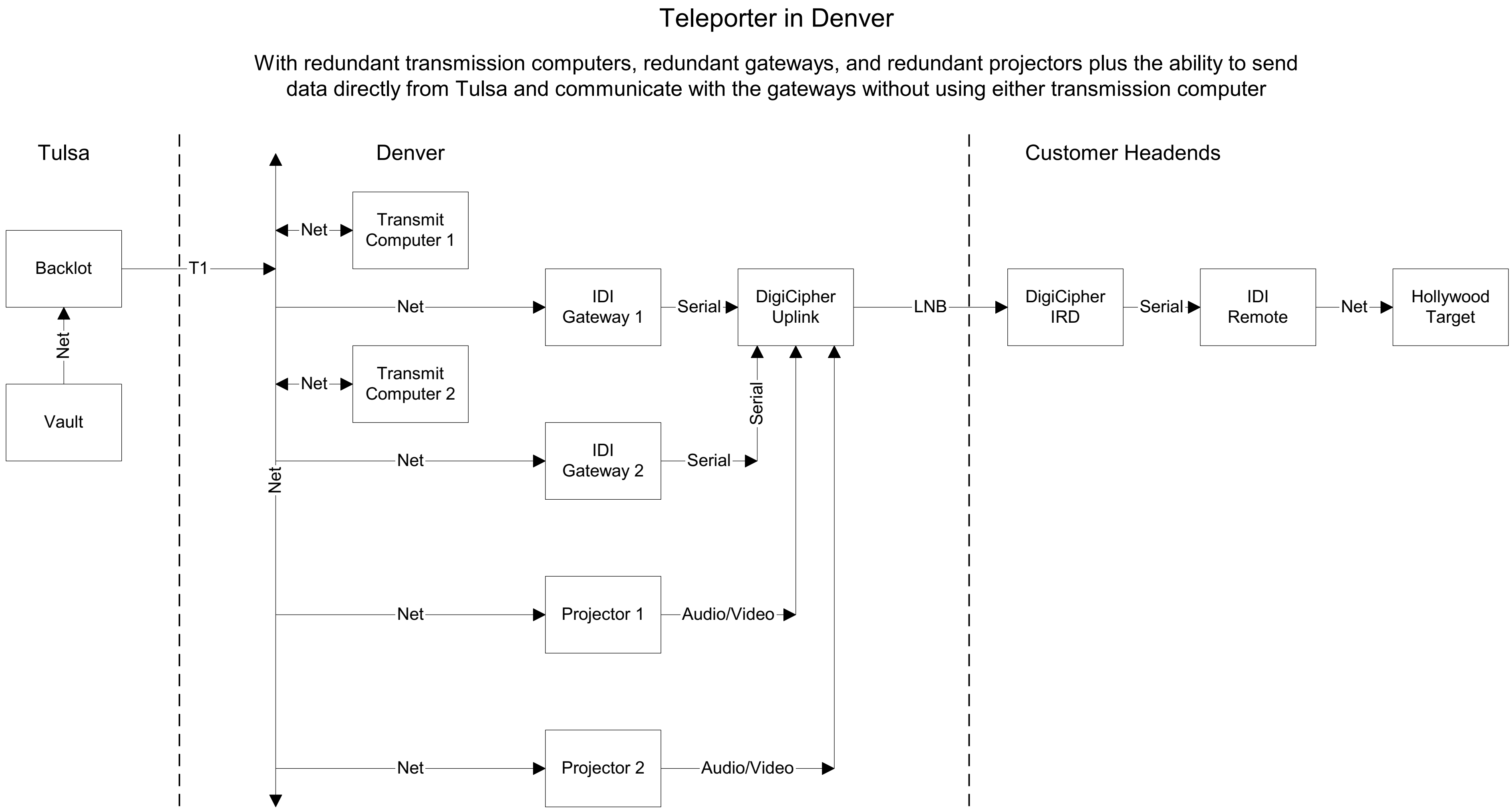
Once the Teleporter moves to Denver, the Backlot and Vault will be separated from the transmission components by a pair of T1 lines. The targets will be separated from the uplink by a transmitter, transmit dish, satellite, receive dish, and LNB from the DigiCipher uplink. Once again it will be necessary to isolate the traffic between the transmit computer and projectors from the T1 link back to Tulsa.

D



In order to provide some fault tolerance in the system, a second transmission computer and gateway can be added to the system. Note that this diagram ignores the problem of selecting which serial data line and which audio/video line should feed into the DigiCipher. In this diagram one side of each transmission computer is connected to a small network which is linked back to Tulsa by T1. All transmitted traffic is isolated on another network which connects the transmission computers, gateways, and projectors.

E



This diagram adds the ability to transmit data directly from Tulsa, as well as to communicate directly with the projectors and gateways without going through the transmission computers. This requires some type of isolation of the transmitted traffic on the network in Denver from the T1 line.

Q&A

Questions from our tranmission block diagram meeting: (All of these questions reference drawing B)

***Q1**: What is the function of the projector?

Q2: In drawing B, why have a projector? Why not have all of the files go straight through instead of being sidelined

***Q3**: What in the BO determines/controls whether a video file passes straight through or gets decoded to read-time video by the projector?

Q4: How many video outputs does the projector have?

Q5: How does the projector combine several videos into one?

***Q6**: What is the function of the IDI module?

Q7: Is there a significant (more than 1 frame) delay or latency (unpredictable differences in delay) between the path links of going through the projector (real-time video) and going straight through (a clock command every minute) that would result in the videos and scheduled promotion overlays being out of sync?

***Q8**: Which of the drawings (A,B,C,D, or E) represents a workable system that we ultimately wish to implement?

***Q9**: Which of the drawings (A,B,C,D, or E) represents a workable economic test system?

Q10: Which drawings (A,B,C,D, or E) are never planned to be implemented but represents a training view to show progressively more complex systems?

Q11: Which of the drawings (A,B,C,D, or E) represents the current system as of the December 5, 1998?

* Must know questions.

A1: To create a real -time video / audio feed similar to our current feed in the legacy products created by the RAVE system.

A2: The Digicipher Uplink can either stream video information as a real-time stream which the IRD can decode and play or stream data in the form of files which can be played from the local hard drive of a target machine. We prefer to have most of the video in a realtime stream but data is sent as files.

A3: The national screen play generator controls what files are available to the projector. Each target and each projector determines which files it can play locally by taking the national screen play and running it through a local function (local screen play generator) The local screen play generator for the projectors is a identity (no change) function.

A4: ONE! The video output is very similar the currrent legacy video, a composite of several videos. The target video cards have the ability to move the input quadrant (source location) to the output quandrant (destination location). Jess drew a nice picture for this.

A5: The x (Magni, STB, Matrox I can never remember) card allows the projector to stream several videos from it's drive and size / position them to a video screen.

A6: The IDI module interfaces between the propriatary Digicipher serial stream and a standard network 10-base T interface that allows the target to think it is connected to a standard network.

A7:Doesn't seem to be a problem but we've not demonstrated system sync over large distances. All of our units are in house and we haven't configured the paths the way we intend to but theoretically the latency is small (The delay is constant and can be compensated for.)

A8:E

A9:B

A10: C& D

A11:A