RPC

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1 rpc.h

The global variables declared here are:

- extern PacketEncoder *rpcInterfaceShadowDaemonPacketEncoder
- extern PacketEncoder *rpcInterfaceTerminalPacketEncoder
- extern PacketEncoder *rpcInterfaceKernelPacketEncoder
- extern EtnNullEncoder *rpcInterfaceNullEncoder
- extern EtnBufferDecoder *rpcInterfaceBufferDecoder
- extern EtnRpcHost *rpcInterfaceShadowDaemonHost
- extern EtnRpcHost *rpcInterfaceTerminalHost
- extern EtnRpcHost *rpcInterfaceKernelHost
- extern EtnRpcHost *rpcInterfaceNullHost

Using extern keyword, C variables are declared but not defined. So, they must be defined in another header or c file before using them. In particular, these variables are defined in *packetEncoder.c* Moreover, the extern extends the visibility to the whole program. These global variables are used as hosts, encoders and decoders of Ethos primary components.

The functions exported by the header file are:

- *void rpcInit(void)*
  This function calls some other functions that initialize rpc components. The definition is inside *rpc.c*.
- *rpcCall(fn, host, connection, eventId, ...)*
  This macro is used to:
  1. calculate length of encoded packet with a dummy run
  2. reset the packet encoder with this length
  3. perform the actual RPC call

2 rpc.c

The global variable declared and defined here is:

- DebugFlagDesc debugFlagDesc[]
  This is simply an array of debug flags. It is in *rpc.c* because it is used from both *Ethos* and *Dom0* even though it is not RPC-specific.

In this file, there are some debug purpose functions. They are used to send a ping between both Shadowdaemon and Terminal. Here they are:

- *void rpcShadowDaemonPing (EtnRpcHost *h, uint64_t eventId)*

- *void rpcShadowDaemonPingReply (EtnRpcHost *h, uint64_t eventId, Status status)*
  Parameters *h* and *eventId* are useless in this function since they are not used.

- *void rpcTerminalPing (EtnRpcHost *h, uint64_t eventId)*

- *void rpcTerminalPingReply (EtnRpcHost *h, uint64_t eventId, Status status)*
  Parameters *h* and *eventId* are useless in this function since they are not used.

The other functions defined here are:

- *void rpcInitInterfaces(void)*
  This function initialize the interfaces. All the variables that are initialized are global variables declared in *rpc.h* and defined in *packetEncoder.c*. For each Ethos primary component a packet encoder is defined. Then, a null encoder and a buffer decoder are also defined. These five interfaces, in addiction to the servers of each primary component, are used to define the interface host of each primary component. This function contains very bad casts since they are memory allocation dependent.

- *void rpcInit(void)*
  This function calls some other functions that initialize rpc components. The declaration is inside *rpc.h*

3 packetEncoder.h

4 packetEncoder.c

5 connection.h

6 connection.c

7 erpc.c

8 etn.h