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Introduction

The current draft of the H.323 standard (specifically section 6) refers to H.323 terminals as having a network (transport) address and an E.164 address. Additionally the H.323 terminal may have a 'H323_ID' which is currently ill defined. It should be obvious that the transport address is not a sufficient reference with which to call terminal from outside the transport system; hence these two possible additional values. The original motivation in my proposal, was to allow multiple 'aliases' to be associated with the terminal, so that each system could use its native format to refer to the other. The translation (or mapping) between the aliases must always occur at the 'edges' of the adjoining systems (i.e. at the gateway). This does not imply that the gateway must compute the translation, simply that it causes the mapping to occur. In other words the Gateway will use the facilities of the Gatekeeper to determine the mapping. It will supply the 'typed' address from the 'outside' and receive the transport address. (For example get an IP address when supplying an E.164 address).

As each terminal registers, it must supply its transport address and any alternative addresses by which it may be contacted. Each alternative address will have a *type* associated with it. For example the terminal will register its IP address to be associated with its E.164 number (its *circuit* alias). It might also register a NOS specified text identifier; perhaps a *username or email name*. Thereafter, the gatekeeper (with which the terminal has registered) may return the valid IP address associated with *either* the NOS identifier or the E.164 number.

Note that a user may have multiple points of presence on the LAN; logged in, in many places. This is analogous to have many phones in your house; but not quite. It does not make sense to have every terminal 'ring'. Each external address must resolve unambiguously to a single transport address. The registration process will signal whether the current association is to take precedence over any previous registrations.

Additionally, it will be beneficial to allow the 'listing' and 'unlisting' of specific external addresses, with sequential registrations.

The following text is proposed for section 6.1 in H.323:

> Each H.323 terminal shall have a network address. The H.323 terminal may also have one or more external addresses associated with it. As each terminal registers, it must supply its transport address and any alternative addresses by which it may be contacted. Each external address will have a *type* associated with it. For example the terminal will register its IP address to be associated with its E.164 number. It might also register an H323_ID specified text identifier; perhaps a *username or email name*. Note that it is beyond the scope of this standard to specify the format or generation of the H323_ID; it is assumed to be unique. Thereafter, the gatekeeper (with which the terminal has registered) may return the valid IP address associated with *either* the H323_ID identifier or the E.164 number. These external addresses will be of a *typed* format including an E.164 address and; an unformatted IA5 string of 64 characters including the terminating NULL. Other typed addresses are possible, but are left for further study. The manner in which these external addresses are associated with the H.323 terminal is the terminal registration with the gatekeeper, as specified in 6.2. [Note that if there is no Gatekeeper present on the network, address translation may occur in some non-standardized manner, but this is outside the scope of this document]

The following text is proposed for section 6.2 in H.323

> When gatekeepers are present, all terminals and Gateways must register with their Gatekeeper. When a Gatekeeper is present, it must be aware of the terminals and Gateways within its Zone. The registration process facilitates this awareness, and also associates a terminal's network address with its E.164 address and/or any other typed, external addresses. A terminal registration may not change only one of its external addresses Each external address should resolve unambiguously, to a single transport address.

Under section 6.2.1 the first sentence should state:

As part of their configuration, H.323 terminals and Gateway units, must send a Registration Request (RRQ) to the appropriate Gatekeeper for their site, if present.

The following text is proposed for section 7.13 in H.225.0 (under the **RegistrationRequest** PDU)

```
NodeType            ENUMERATED
{
        Gatekeeper          (1),
        Gateway             (2),
        MCU                 (4),
        Terminal            (8),
        MC                  (16),
        Undefined Node      (268435456)
}
```

[note that the above may be Bitwise ***OR'd*** for H.323 nodes with multiple abilities]

The **ExternalAddress** structure is meant to capture the various external address formats that reference a particular transport location on the LAN.

```
ExternalAddress             ::=CHOICE
{
        E164            OCTET STRING (SIZE(16)),
        H323_ID         OCTET STRING (SIZE(64))
}       -- as new types are defined, they can be added to the above table
```

```
RegistrationRequest        ::=SEQUENCE --(RRQ)
{
        requestSeqNum      INTEGER (1..65535),
        bindRequest        BOOLEAN,
        ControlAddress     NetworkAddress,
        terminalType       NodeType,
        terminalExt        SEQUENCE OF ExternalAddress,
        ExtOverwrite       BOOLEAN,
        propExtension      ToBeAdded
}
```

requestSeqNum - this is a monotonically increasing number unique to the caller. It should be returned by the called in any PDUs associated with this specific PDU.
bindRequest - set to TRUE if requesting a new binding with a new gatekeeper; set to FALSE if registering only.
ControlAddress - this is the network control address for this terminal. If multiple transports are supported, they must be registered separately. This address includes local port information.
terminalType - this specifies the type(s) of the terminal that is registering. The MC bit cannot be set unless other bits are set (specifically: Gatekeeper, Gateway, MCU, or Terminal)
terminalExt - This optional value is a list of external addresses, by which external (to the LAN) terminals may identify this terminal such as E.164 numbers or H323_IDs.
ExtOveride - set to TRUE if ExternalAddresses are to overwrite any previously registered values.