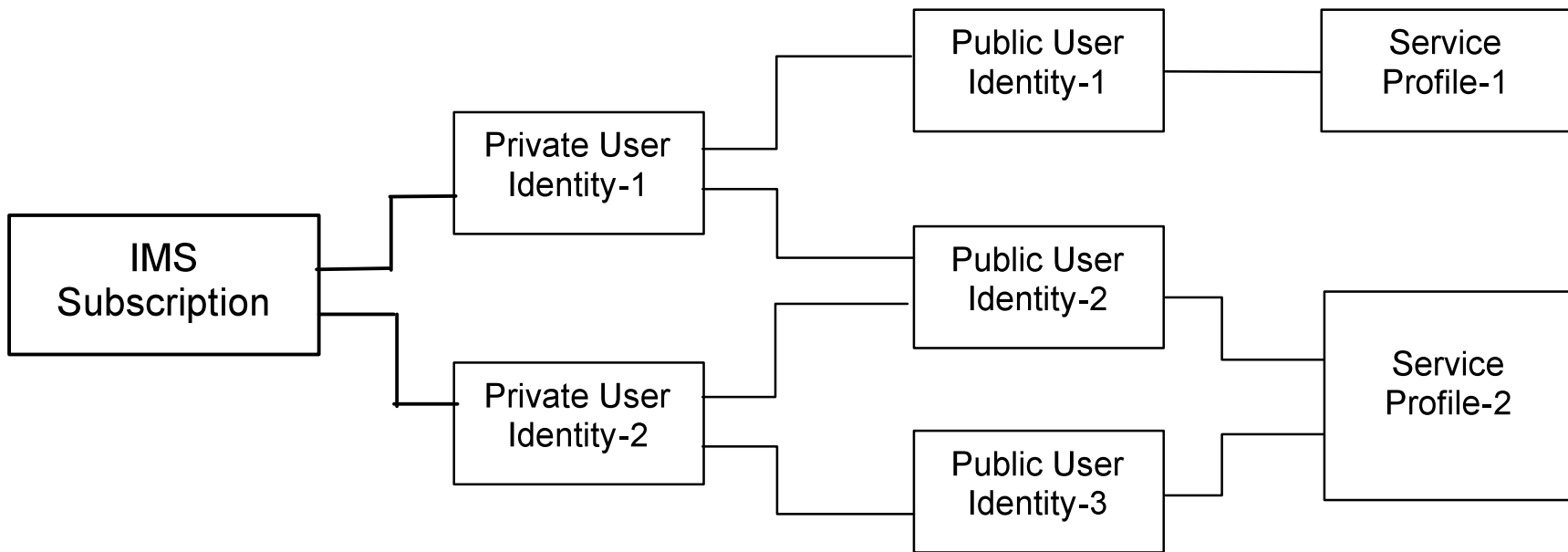# IMS implicit registration

Keith Drage

# IMS release 5 – ALL USERS

- All users have implicit registration
- Essentially registration of one URI creates multiple registrations.
- Based on IETF text:
  - RFC 3261: section 4: "The location service is just an abstract concept.  It generally contains information that allows a proxy to input a URI and receive a set of zero or more URIs that tell the proxy where to send the request.  Registrations are one way to create this information, but not the only way.  Arbitrary mapping functions can be configured at the discretion of the administrator".
  - RFC 4083: section 4.10.2.2: "It must be possible to register globally (i.e., through one single UA request) a user that has more than one public identity that belongs to the same user profile, via a mechanism within the IMS. In this case, the user will be registered with all the public identities associated to a user profile. We believe this requirement may be accomplished by external procedures. For example, the user's profile may contain a list of alias identities that the registrar considers active if the primary identity is registered. The user may get informed of the automatically registered public user IDs by subscribing to its own registration state. "

# Relationship of identities

```
                              ┌──────────────────┐          ┌──────────────┐
                              │  Public User     │──────────│   Service    │
                    ┌─────────│  Identity-1      │          │   Profile-1  │
      ┌──────────────────┐    └──────────────────┘          └──────────────┘
      │  Private User    │
   ┌──│  Identity-1      │──┐
   │  └──────────────────┘  │ ┌──────────────────┐
┌──────────────┐            └─│  Public User     │──┐
│     IMS      │              │  Identity-2      │  │
│ Subscription │              └──────────────────┘  │ ┌──────────────┐
└──────────────┘                                    └─│   Service    │
   │  ┌──────────────────┐  ┌──────────────────┐      │   Profile-2  │
   └──│  Private User    │──│  Public User     │──┐   └──────────────┘
      │  Identity-2      │  │  Identity-2      │  │
      └──────────────────┘  └──────────────────┘  │
                            ┌──────────────────┐  │
                            │  Public User     │──┘
                            │  Identity-3      │
                            └──────────────────┘
```

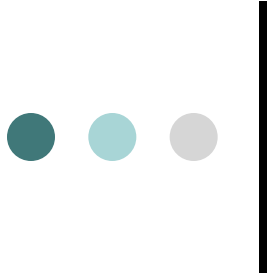○ In IETF terms, this data is held at the location server

# Informing the UA

- In terms of what is registered, this data is passed to the UA using two mechanisms
  - P-Associated-URI: RFC 3455: "This extension allows a registrar to return a set of associated URIs for a registered address-of-record. We define the P-Associated-URI header field, used in the 200 OK response to a REGISTER request. The P-Associated-URI header field transports the set of Associated URIs to the registered address-of-record." This returns the status at the time of registration.
  - Subscription to Reg event package: This is the only means by which the UA learns that implicitly registered URIs are now deregistered. RFC 4083 defines the need for network initiated deregistration in IMS.

# Business trunking (release 8)

- Talking here about subscription-based business trunking only – peering based also exists and uses standard network-network mechanisms.
- What got added to the above:
  - Support of wildcarded public user identities. Rather than return a list of URIs in reg event and P-Associated-URI, a wildcard can be presented which essentially summarises the lot. Wildcarding was not invented for this in IMS – it was used for public service identities in release 6. Rather here we have the application to implicitly registered public user identities. "consists of a delimited regular expression located either in the userinfo portion of the SIP URI or in the telephone-subscriber portion of the Tel URI. The regular expression in the wildcarded PSI shall take the form of Extended Regular Expressions (ERE) as defined in chapter 9 in IEEE 1003.1-2004 Part 1 [60]. The delimiter shall be the exclamation mark character ("!"). If more than two exclamation mark characters are present in the userinfo portion or telephone-subscriber portion of a wildcarded PSI then the outside pair of exclamation mark characters is regarded as the pair of delimiters (i.e. no exclamation mark characters are allowed to be present in the fixed parts of the userinfo portion or telephone-subscriber portion)." where the reference is: [60] IEEE 1003.1-2004, Part 1: Base Definitions

# Business trunking (cont) (release 8 )

- Incorporation of an option at the registrar, whereby if the service profile so indicates, the Request-URI is not replaced (passed on as received), but the the content of the target URI determined is added as last URI of the route.

- GRUUs: If the UA performs the functions of an external attached network (e.g an enterprise network) the UA could have self allocated its own GRUUs. In this version of the specification only UE self allocated public GRUUs are supported. Routing to a specific UA self-allocated public GRUUs requires that "loose route" is provisioned in the service profile of the served public user identity. Use of UA self-allocated temporary GRUUs is not supported in this version of the specification and requests addressed to UE self allocated temporary GRUUs will fail to be routed to the UE.