

nominet[®]

ENUM Registration Systems

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enum

free your phone

A service from Nominet

ENUM systems overview

- ENUM registration process
- Data structure and validation tokens
- ENUM operations
- Extensible provisioning protocol (EPP)

ENUM registration process (1)

Registrant contacts registrar for ENUM registration



Validation Agency



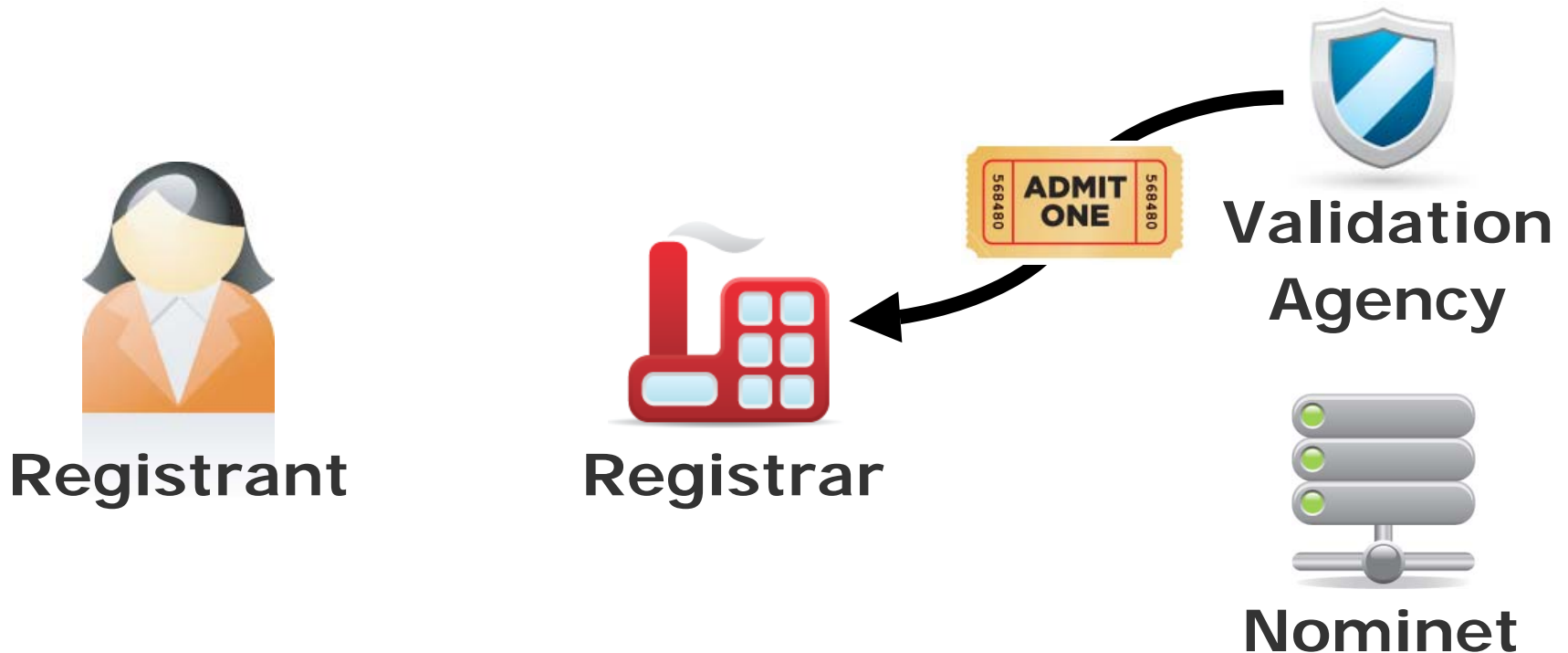
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Registrar sends ENUM request to Validation Agency



ENUM registration process (3)

The ENUM request is validated and a secure token is sent to the registrar



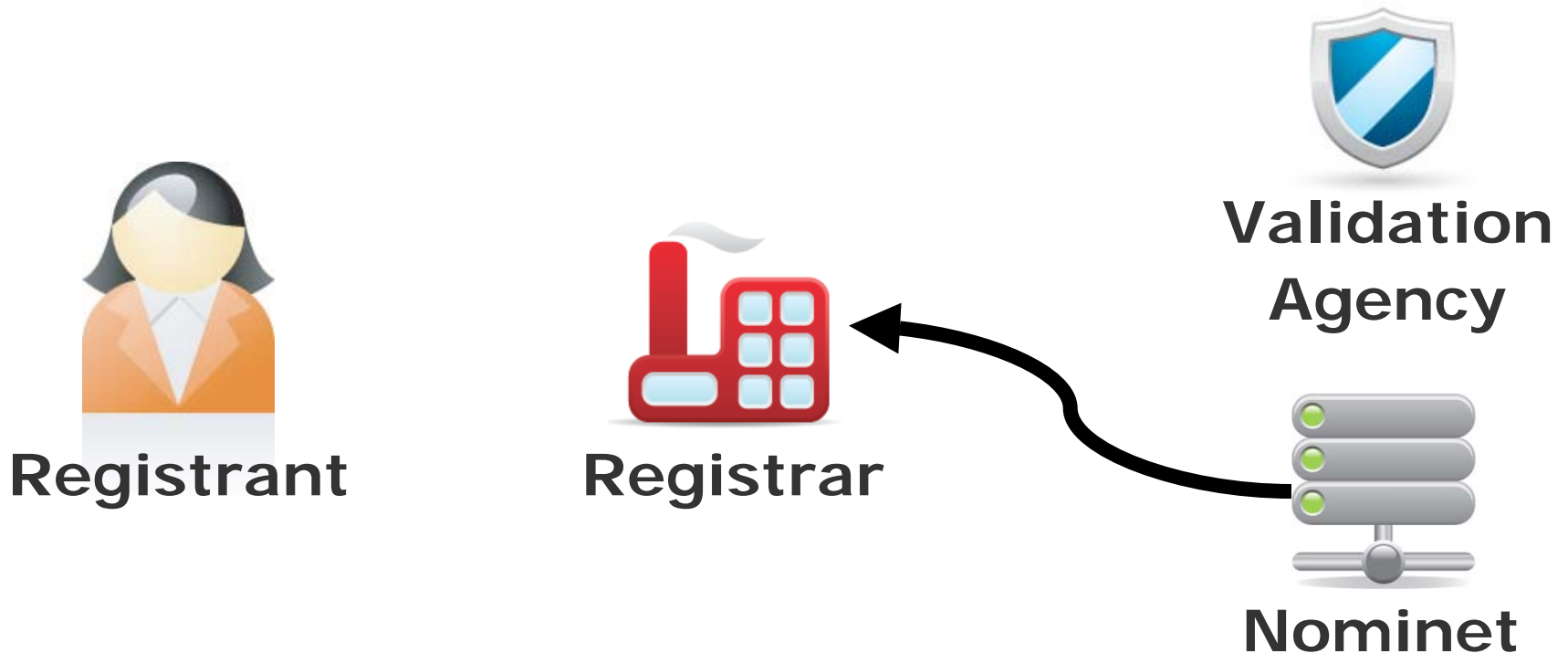
ENUM registration process (4)

ENUM registration request and token are sent to Nominet via EPP



ENUM registration process (5)

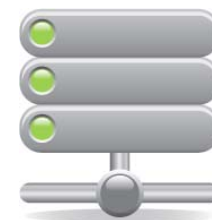
Nominet confirms the ENUM registration with the registrar



Registrar informs registrant of successful registration



**Validation
Agency**



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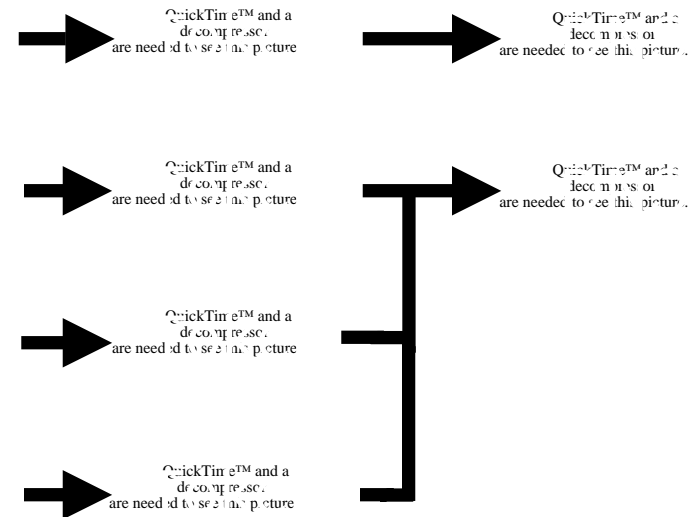
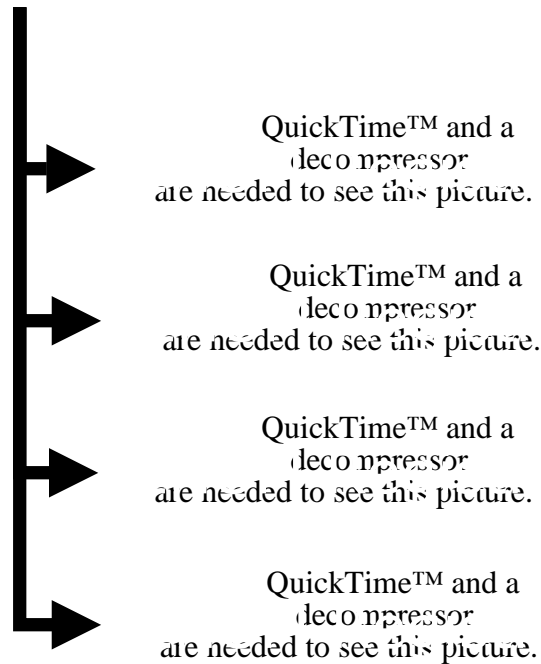
ENUM data structure (1)

- ENUM Registration
 - The ENUM registration object contains a contiguous range of telephone numbers belonging to a single legal entity
- Token
 - The token object contains the details of the validation agency token that was provided upon registration, renewal or registrar change
- Nameservers
 - The nameserver object contains the hostname and IP address. These objects are specific to the ENUM tag



ENUM data structure (2)

QuickTime™ and a decompressor are needed to see this picture



Validation tokens

- A registrant must prove that they are the end user of the telephone number. This is done by Validation Agency (VA)
- Once a registration is validated, the VA issues a validation token confirming ownership of the number range.
- Tokens are digitally signed and include the following:
 - The contiguous range of telephone numbers
 - Who the registrar is
 - Information about the registrant
 - Expiration date of the token

<validation> element fields

serial	Identifies the token and is unique per VA
E164Number	The first number in the ENUM range validated
lastE164Number	The last number in the ENUM range validated If it is not present then only a single number has been validated. E164Number and lastE164Number must be the same length.
validationEntityID	Identifies the VA
registrarID	Identifies the registrar
methodID	Identifies the method used by the VA for validation
executionDate	The date of validation.
expirationDate	The expiration date of the validation token. This must cover the registration period applied for on registration or renewal; or the existing registration period on transfer or modification



<tokendata> element fields





organization	Contains the full name of the organisation to which the registrant is affiliated
commercialregisternumber	The registered number of the company or organisation
title, firstname, lastname	The registrant's name
address	A single address section containing streetName, houseNumber, postalCode, locality, countyStateOrProvince and ISOcountryCode
phone	Up to 10 fields are allowable
fax	Up to 10 fields are allowable
email	Up to 10 fields are allowable



Example validation token

```
<token xmlns="urn:ietf:params:xml:ns:enum-token-1.0" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
Id="TOKEN" xsi:schemaLocation="http://www.nominet.org.uk/epp/xml/nom-enum-token-1.0.xsd
nom-enum-token-1.0.xsd">
  <validation serial="acmeve-000001">
    <E164Number>+442079460123</E164Number>
    <lastE164Number>+442079461000</lastE164Number>
    <validationEntityID>ACME-VE</validationEntityID>
    <registrarID>ENUM-EXAMPLE</registrarID>
    <methodID>42</methodID>
    <executionDate>2007-05-08</executionDate>
    <expirationDate>2009-05-08</expirationDate>
  </validation>
  <tokendata xmlns="urn:ietf:params:xml:ns:enum-tokendata-1.0" xsi:schemaLocation="http://www.nominet.org.uk
/epp/xml/nom-enum-tokendata-1.0 nom-enum-tokendata-1.0.xsd">
    <contact>
      <organisation>Example Inc.</organisation>
      <title>Dr.</title>
      <firstname>Max</firstname>
      <lastname>Vanstone</lastname>
      <address>
        <streetName>Main Street</streetName>
        <houseNumber>10</houseNumber>
        <postalCode>NW1 1AA</postalCode>
        <locality>Picadilly</locality>
        <countyStateOrProvince>London</countyStateOrProvince>
        <ISOcountryCode>GB</ISOcountryCode>
      </address>
    </contact>
  </tokendata>
```

ENUM operations (1)

	Notes	Status
Create	Requires a token	
Renew	Requires a token	
Delete	Requires a token. No Limits	
Update	Requires a token*	



= Available







= Planned




= Unavailable

ENUM operations (2)

	Notes	Status
Info		
List		
Transfer	Requires a token. Used to move an ENUM registration onto your tag	
Poll		

 = Available

 = Planned

 = Unavailable



ENUM operations (3)

	Notes	Status
Login		
Logout		
Hello	Will keep your connection open if sent every 59 minutes	
Check	No limits	



= Available



= Planned

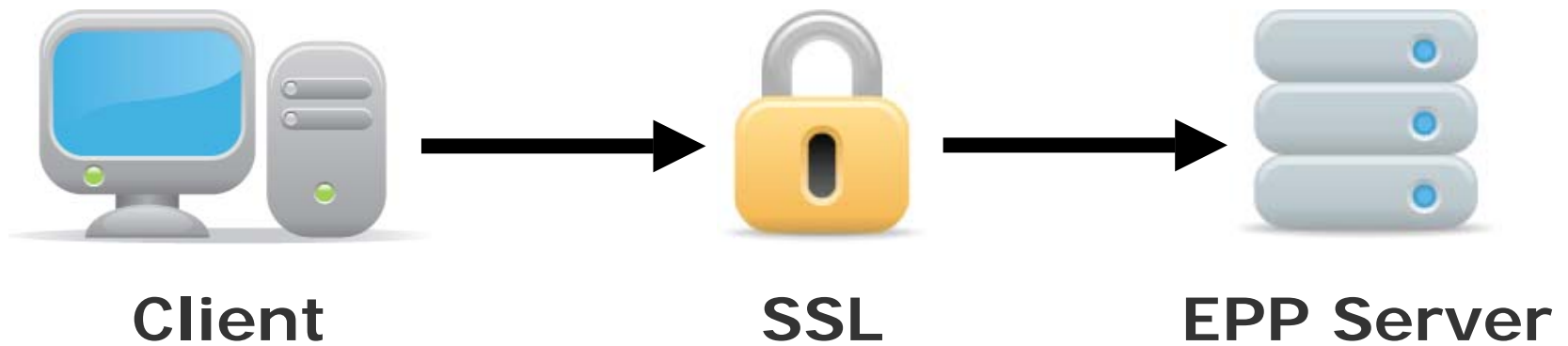


= Unavailable

EPP overview

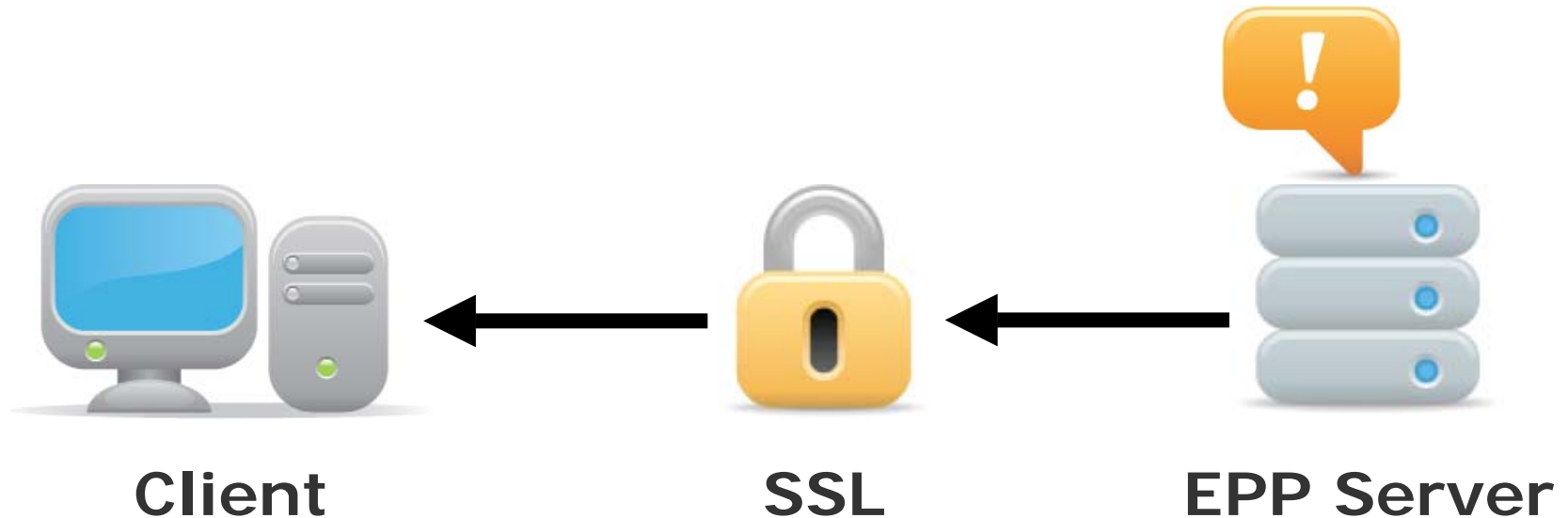
- A protocol that provides “real time” communication between domain name registries and domain name registrars
- Advantages
 - Responses to commands are generally instant
 - Designed for automated systems
- Disadvantages
 - No “out of the box” client available. You must build your own EPP client in order to use this protocol

Client connects to server over SSL

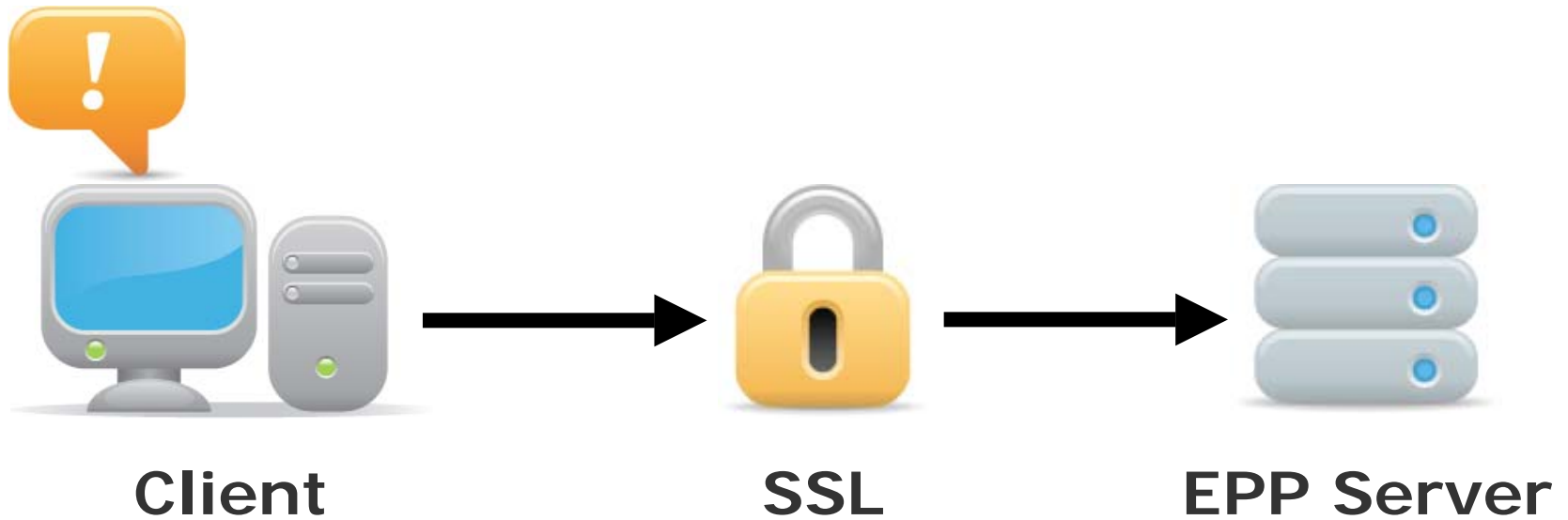


How EPP works

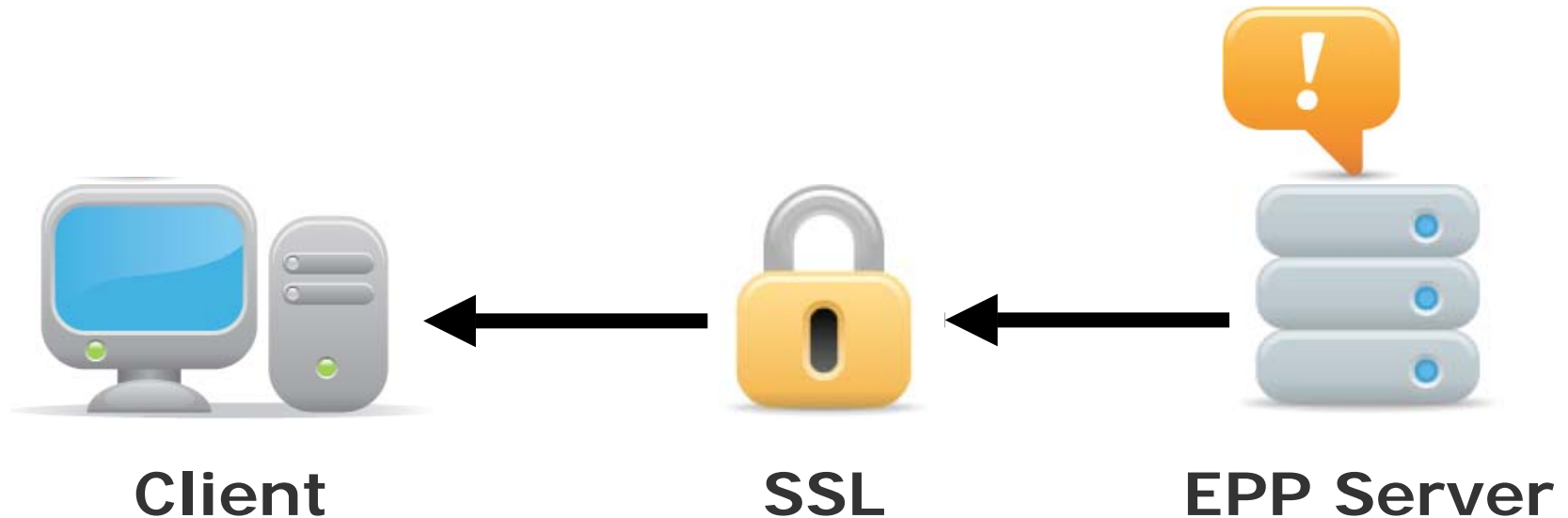
Server identifies itself and the command extensions that it supports



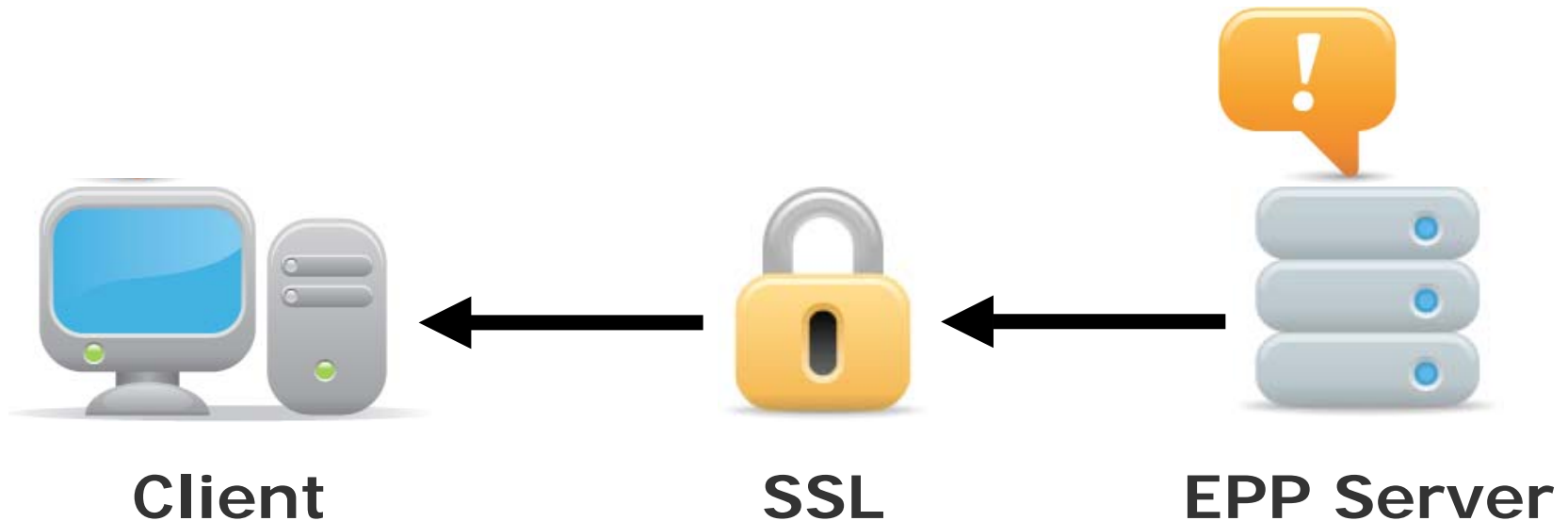
Client logs in by supplying login name and password



Client polls the server for any waiting notifications and collects them

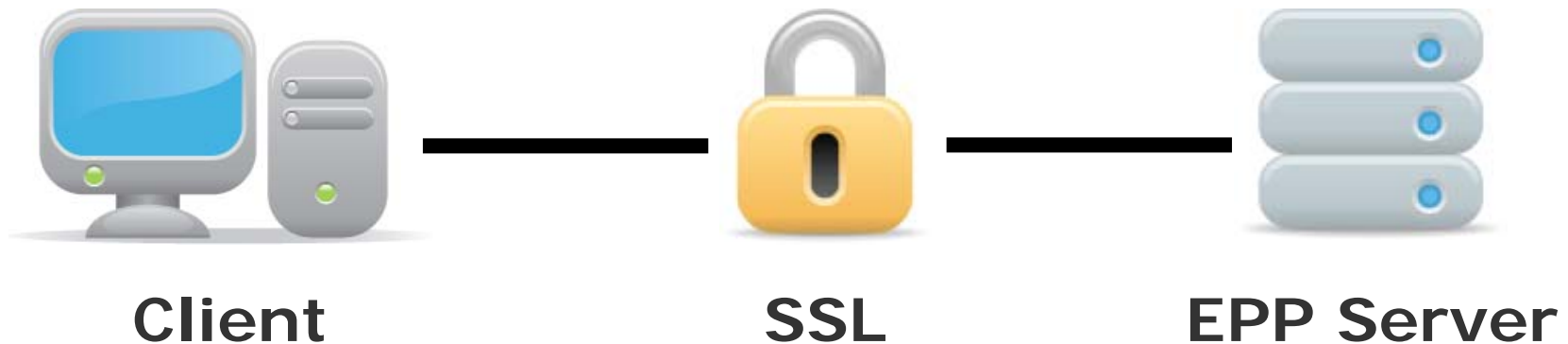


**Client issues commands to server,
which replies immediately**





Client then idles until it has more commands to send



EPP testbed

- There is an EPP testbed to provide registrars a safe 'sandbox' database to test their systems without fear of affecting data on the 'live' registry
- The testbed provides each registrar with a set of fictional registrations
- The dataset is reset daily, discarding any changes and additions made
- Two servers are available, a secure EPP server using SSLv3 and a plain-text server. Both servers connect to the same database

Registrar systems support



Phone

01865 332233

01606 866663* (out of hours)



Email

ENUMsupport@nominet.org.uk



RSS

www.nominet.org.uk/feeds

* Emergency out of hours support is intended for issues that prevent your business from managing ENUM registrations

Web site references

- **Nominet EPP for ENUM:**
www.nominet.org.uk/enum/enumregistrarsystems/epp/
- **Field Definitions:**
www.nominet.org.uk/enum/enumregistrarsystems/data/fielddefinitions/
- **Validation:**
www.nominet.org.uk/enum/registrars/validation/
- **Upcoming Changes:**
www.nominet.org.uk/enum/enumregistrarsystems/plannedchanges/

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Any questions?



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