ECF Discovery API

- A protocol and „space“ agnostic API for service discovery
  - Not bound to OSGi
  - Does not expose provider/protocol internals
    - Namespace/ID allows flexibility in service addressing
    - `providerAService.equals(provdierBService);`
  - Not limited to, e.g., the local subnet (LAN)
    - However some providers are restricted
  - No garantuees (just because something is discoverable, does not mean it is there)
    - Upper layers may fail to connect
- Provides `IDiscoveryLocator` and `IDiscoveryAdvertiser`
  - Locator finds services
  - Advertiser registers/announces services
    - Consumer gets hold of discovery services
- Transparent when used with RFC 119 (`ServicePublication`)

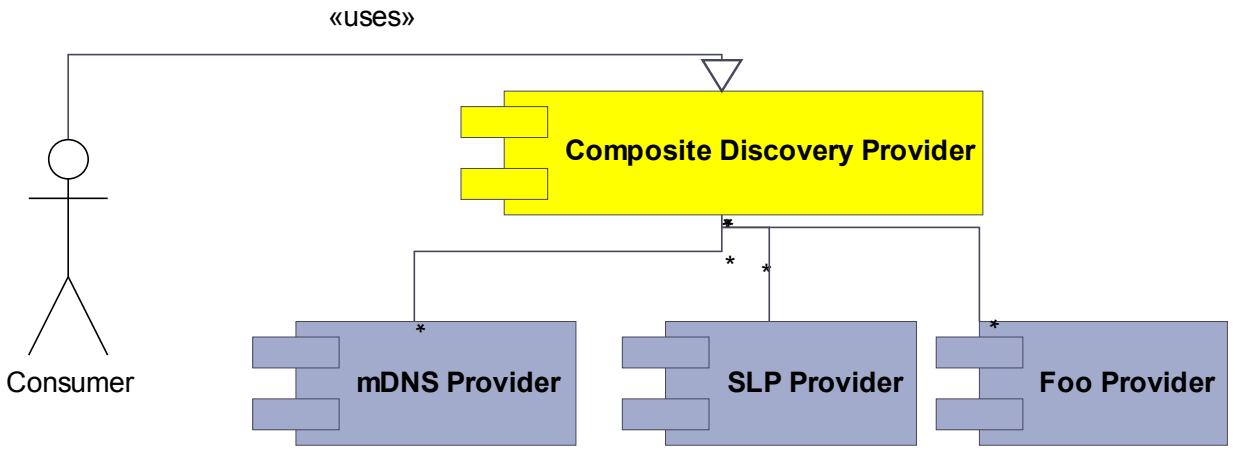
Main Interfaces of ECF Discovery

```
// Discovery and register services with…
org.eclipse.ecf.discovery.IDiscoveryLocator
org.eclipse.ecf.discovery.IDiscoveryAdvertiser

// Uniqueness/Identity for service is handled by IDs
org.eclipse.ecf.discovery.identity.IServiceID
org.eclipse.ecf.discovery.identity.IServiceTypeID
// Factory to create new IServiceTypeIDs
org.eclipse.ecf.discovery.identity.IServiceIDFactory

// The actual service instace (used in query by
   example too)
org.eclipse.ecf.discovery.IServiceInfo
Org.eclipse.ecf.discovery.IServiceProperties
```

Composite Discovery Provider

- **Use case**: All (available) discovery providers at once
- While providing the same interface to clients

- Does not filter redundant `IServiceEvents` (yet)
- Dynamic enabled
  - Stores service registrations to reregister with newly added providers



IP multicast DNS (mDNS)

Dynamic Configuration of IPv4 Link-Local Addr (IPv4LL)

- (link-local/same physical link) 169.254.0.0/16 - RFC 3927

Multicast DNS (mDNS): Peer2Peer name resolution

- Idea: Hosts are authoritative for their resources
- Inherently incompatible with unicast DNS ".local" zones

DNS based Service Discovery (DNS-SD):

- Sits on top of mDNS
- Uses existing DNS SRV and TXT records to compose service descriptions
- Service identity is achieved by instance names ("Mike's printer, 1st Floor.eclipse.org")
- Allows delegation for subdomains, like it is possible in "regular" DNS

One shot and continuous queries

Well-known as Zeroconf/Apple Bonjour

Service Locator Protocol (SLPv2) RFC 2608, …

- Multicast discovery
  - Multicast group 239.255.255.253
    - administratively scoped multicast (RFC 2365)
  - Port 427 (privileged port!)

- User agent (**UA**)
  - maps to Locator
- Service agent (**SA**)
  - maps to Advertiser
- Directory agent (**DA**)
  - Optionally deployed
  - jSLP 2.0
  - OpenSLP

- **Seamless** transition from
  - *Multicast convergence* to
  - *Directory Agent* (DA)
    - DA discovery still multicast

or hard coded