Service Model For Remote Projects

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Usage Models

- Many different usage models that we want to support
  - Entirely local
  - Local services on remote files
  - Remote services on remote files
    - Different services may be on different hosts

  - Do we support:
    - Different files on different hosts?
      - Multiplatform project, might have project files specific to platform
      - System header files will differ on each platform
    - Mixed local/remote?

- Need a way of specifying to the system what the model is we are using

Service Model Specification

- Tells the system what model is being used.
  - Then the system knows which services to invoke locally and which to invoke remotely (and if remotely, where)
- However, we want to have a generic model that is extensible with new services, so we need a dynamic way of handling what services are installed and what providers and hosts they map to

What Is An SMS?

- Has:
  - ➤ A configuration name
  - ➤ A list of services mapped
  - ➤ Mappings of services to service provider implementations and associated host configurations

Mapping of Services - Example

- It's not enough to map the "Build" service to the RSE builder.
- You need to know:
  - Which host to talk to
  - The communication protocol to use (SSH/rlogin/whatever)
  - Any protocol specific data
    - Port number
    - The login credentials (if required)

- The configuration data is inherently service provider specific. Different provider implementations may require different data.

How Do You Find Out The SMS For A Project?

- Remote projects will get a remote nature (org.eclipse.ptp.remote.remoteNature)

- Remote projects will need to have some sort of manager singleton entity (org.eclipse.ptp.remote.RemoteSystemsManager) that can be queried for remote project properties (IRemoteProject) for a given IProject

- IRemoteProject contains methods to get the SMS and any other remote-specific info about the project

Services

- Need a way to register services and service providers and obtain the list of registered services
- Services contributed via org.eclipse.ptp.remote.services extension point
  - Id of service
  - Display name
  - Each type of service is responsible for specifying its own API contract
    - E.g. IBuildService, ICallHierarchyService
  - System does not inherently know anything about the nature of a service
- Well known services would be pre-defined
  - Build, debug, search, etc. etc.
- Service registry (org.eclipse.ptp.remote.services.ServiceRegistry) singleton to query available services

Service Providers

- Service providers contributed via
  org.eclipse.ptp.remote.serviceProviders extension point
  - ➢ Id of service being provided
  - ➢ Display name
  - ➢ className corresponding to the service provider
- Service provider registry
  (org.eclipse.ptp.remote.services.ServiceProviderRegistry)
  singleton to query available service providers for a given service

Project Creation – Specifying The Service Model

New Remote Project

Configure Services
Configure which services will operate locally, and which ones will operate remotely.

Service	Provider	Connection	
Filesystem	Remote Systems Explorer	Pipeorgan.watson.ibm.com	Configure...
Build	PTP Remote Standard Make Builder	Pipeorgan.watson.ibm.com	Configure...
Debug	PTP Remote Debugger	debugnode.torolab.ibm.com	Configure...
Indexing & Search	Local	Add	Configure...

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Problems

- Is it possible to make CDT unaware of the service model?
  - It depends on your POV.
  - The way various services function at a very low level requires knowledge of whether you are targeting the local or the remote machine.
    - E.g., if you're generating a makefile, you need to know how URI's corresponding to project resources map to local paths on the remote machine.
  - If your services are totally outside of CDT, or extend from CDT code, then CDT doesn't need to know about the service model.
  - If you are reusing CDT code without modification, then CDT has to know the service model.