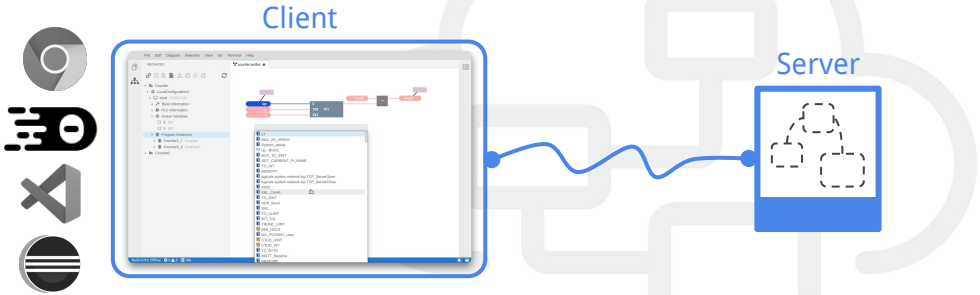


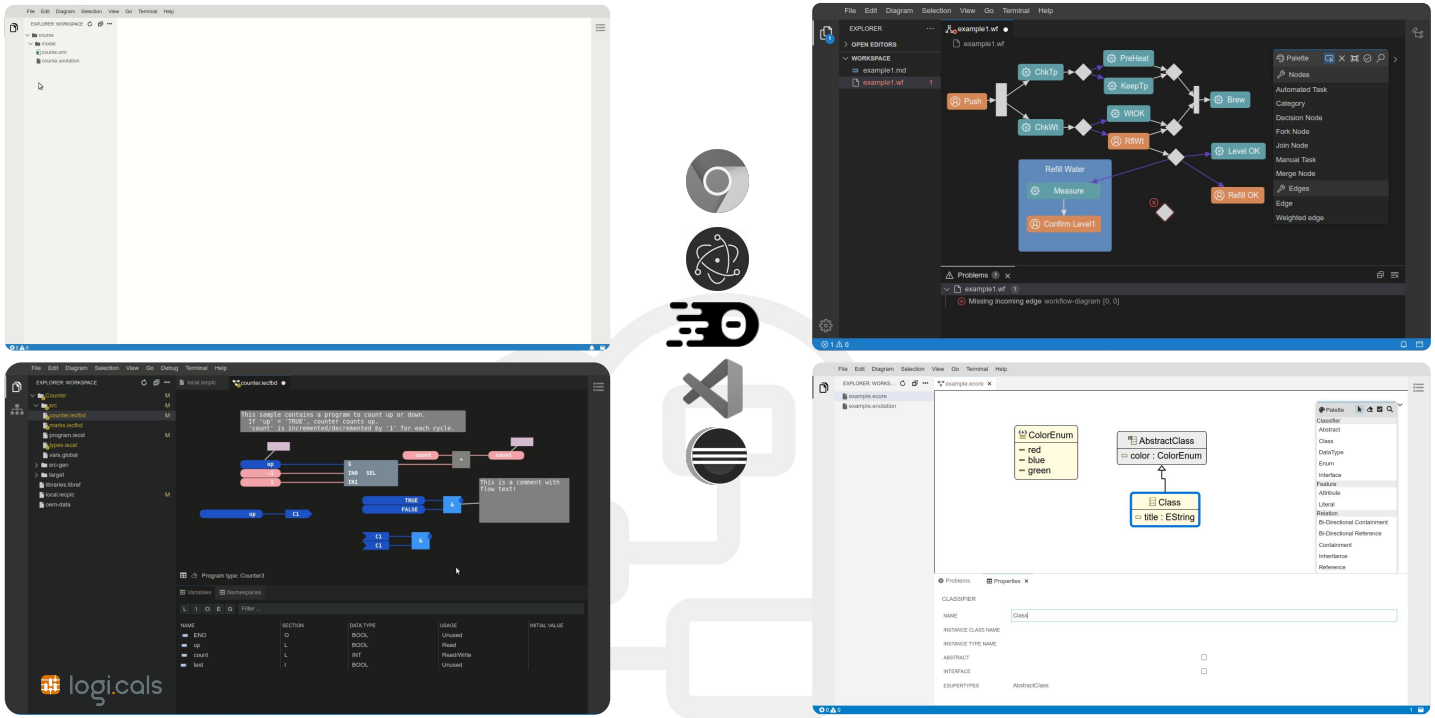
Diagram Editors with GLSP

Why flexibility is key

Philip Langer

planger@eclipsesource.com

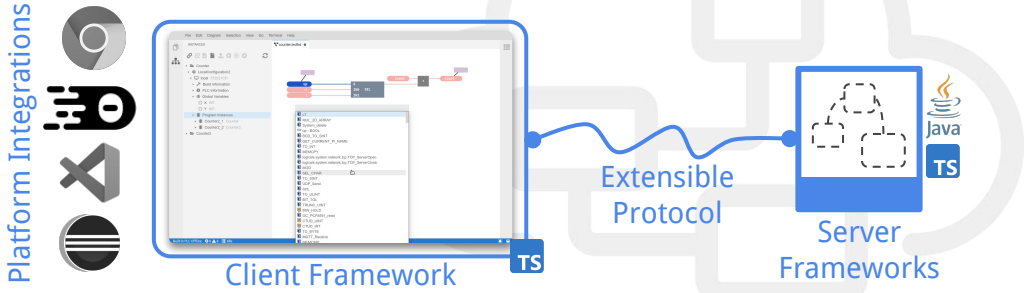
Eclipse Graphical Language Server Platform (GLSP)

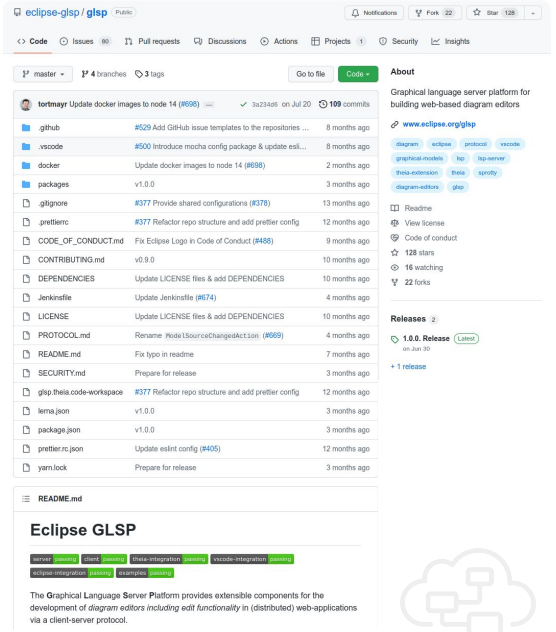


Eclipse Graphical Language Server Platform (GLSP)

Applying the architectural pattern of LSP to graphical modeling

- Development of browser-based diagram clients
- Frontend focused on rendering & user interaction
- Encapsulate language smarts on the diagram server

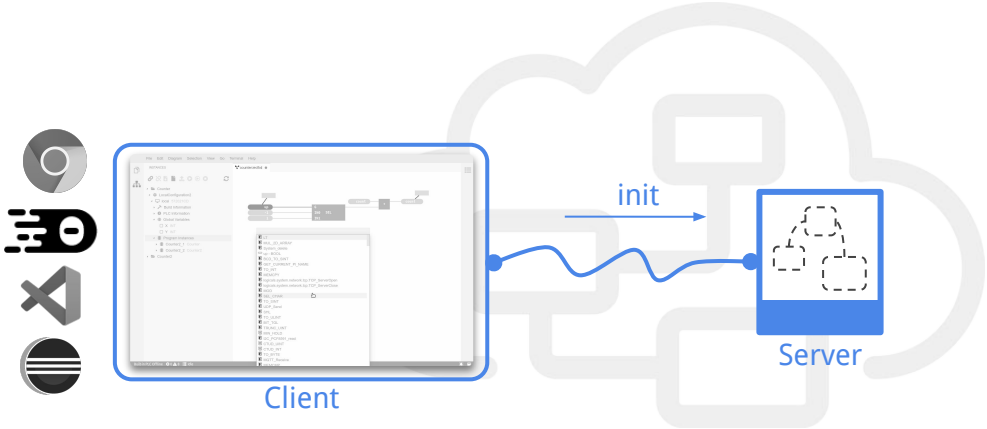




github.com/eclipse-glsp/glsp

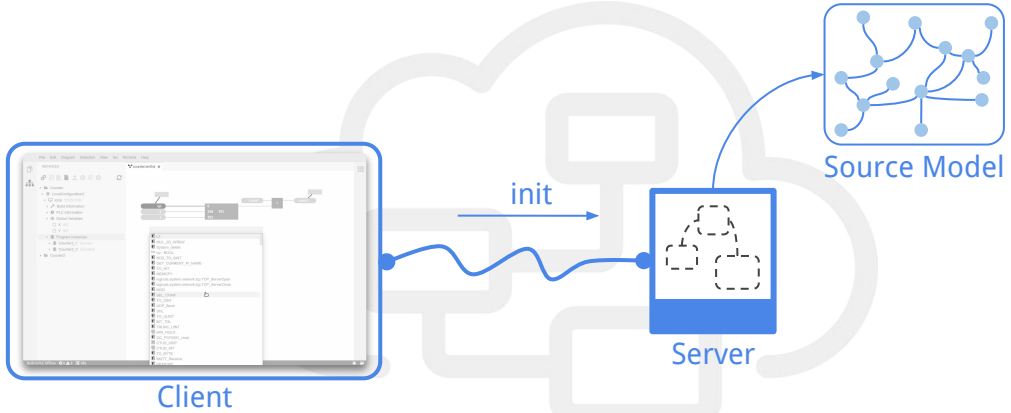
Eclipse Graphical Language Server Platform (GLSP)

- Initialization with parameters
  - URI
  - Diagram type
  - ...



Eclipse Graphical Language Server Platform (GLSP)

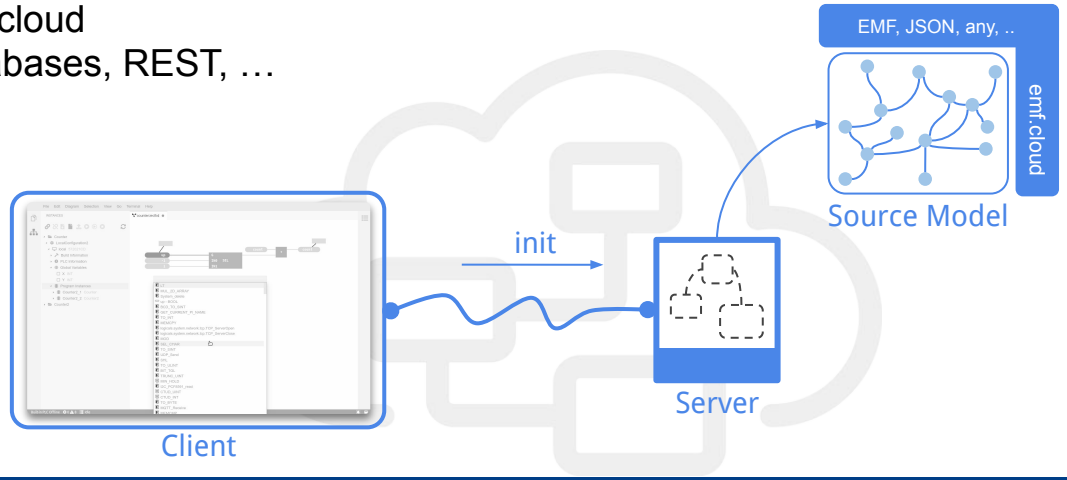
- Server has responsibility to obtain source model



Eclipse Graphical Language Server Platform (GLSP)

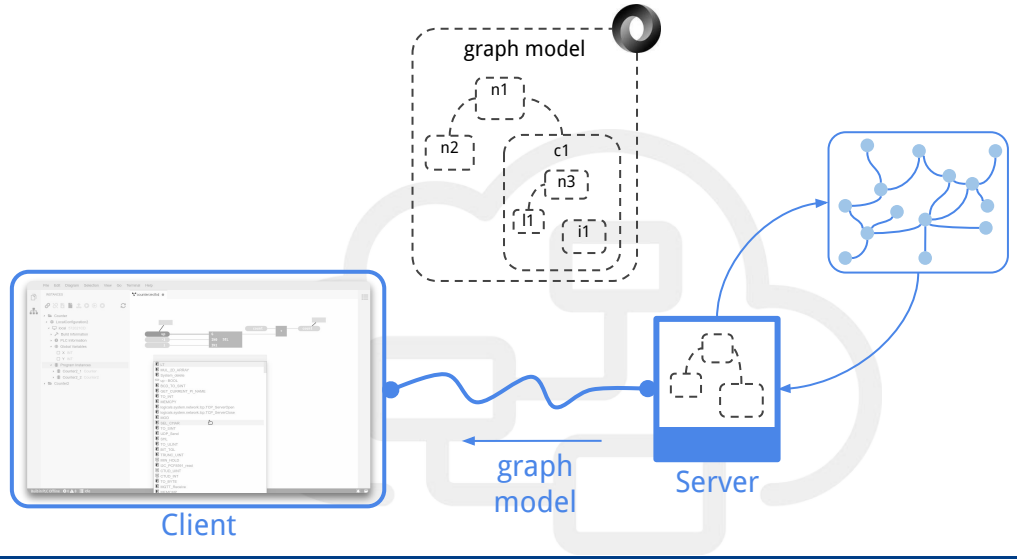
→ Source model can be anything

- EMF
- JSON
- Xtext
- emf.cloud
- Databases, REST, …



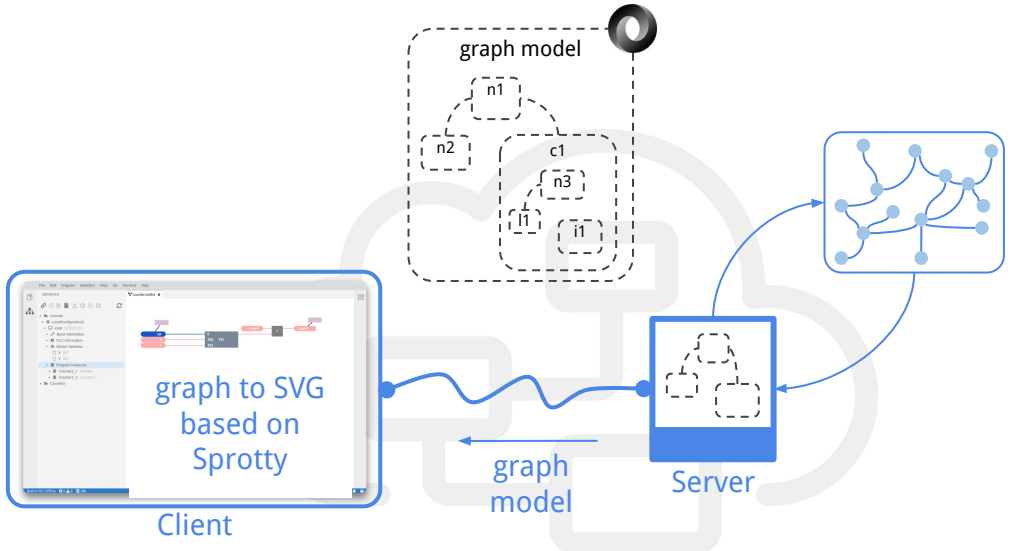
Eclipse Graphical Language Server Platform (GLSP)

- Server maps source model into *graph model*



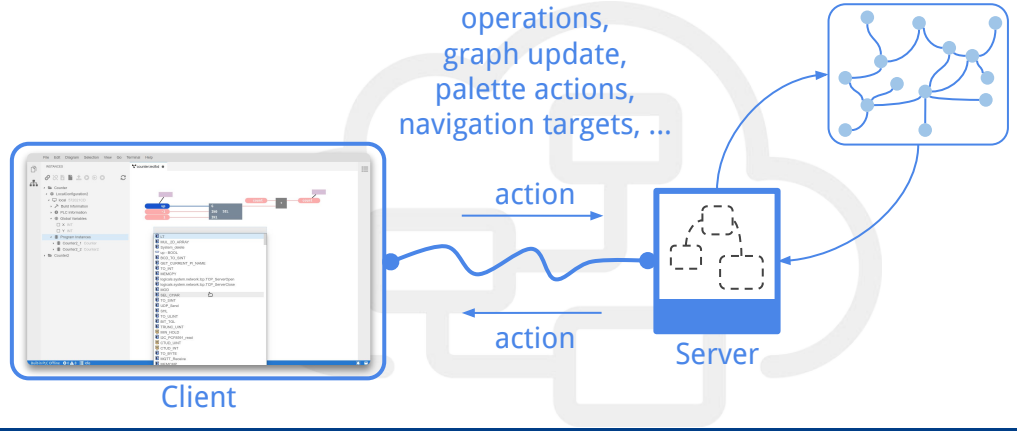
Eclipse Graphical Language Server Platform (GLSP)

- Client translates *graph model* into SVG with Eclipse Sprotty 👍

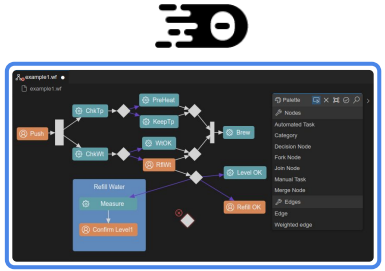


Eclipse Graphical Language Server Platform (GLSP)

- Editing tools on the client
  - Communicate with server via actions (defined in protocol)
- Extensible with custom tools and actions
  - Add domain-specific functionality
  - Adjust default behavior

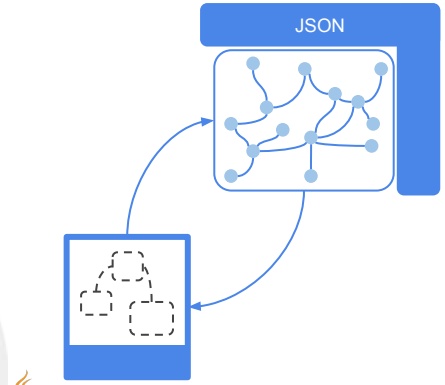


Eclipse Graphical Language Server Platform (GLSP)



TS Client Module

Demo



Java Server Module

What's new?

1

- API Stabilization and Server API Refactoring
  - Flexibilization of source model technology
  - Ready-to-use modules for EMF, JSON, EMF.cloud
- Node-based Server Framework
  - Typescript for client and server
  - Alleviates runtime requirements
- Documentation and Project Templates
  - Getting started quickly for your architecture

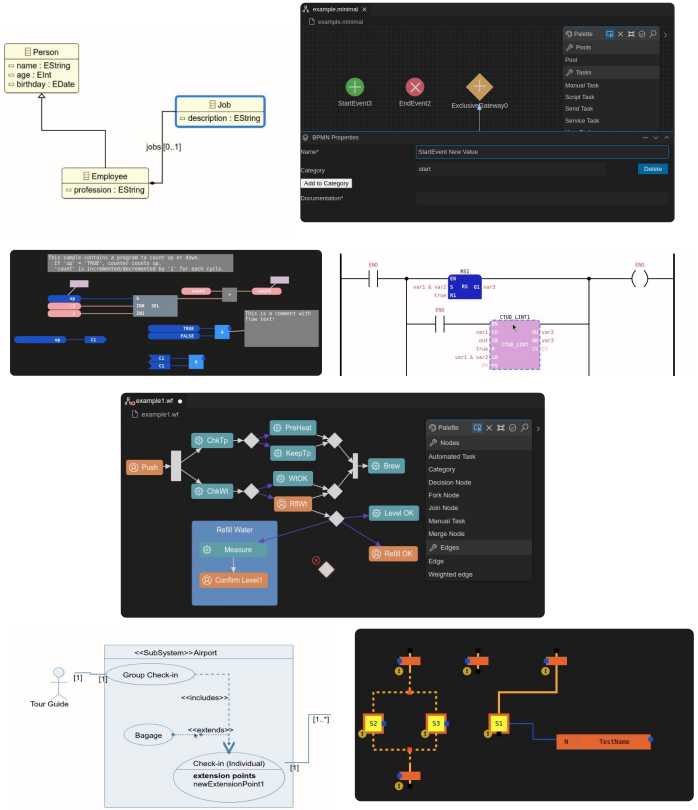
and more

contributors ~26
commits ~1027
npmjs weekly downloads ~1218

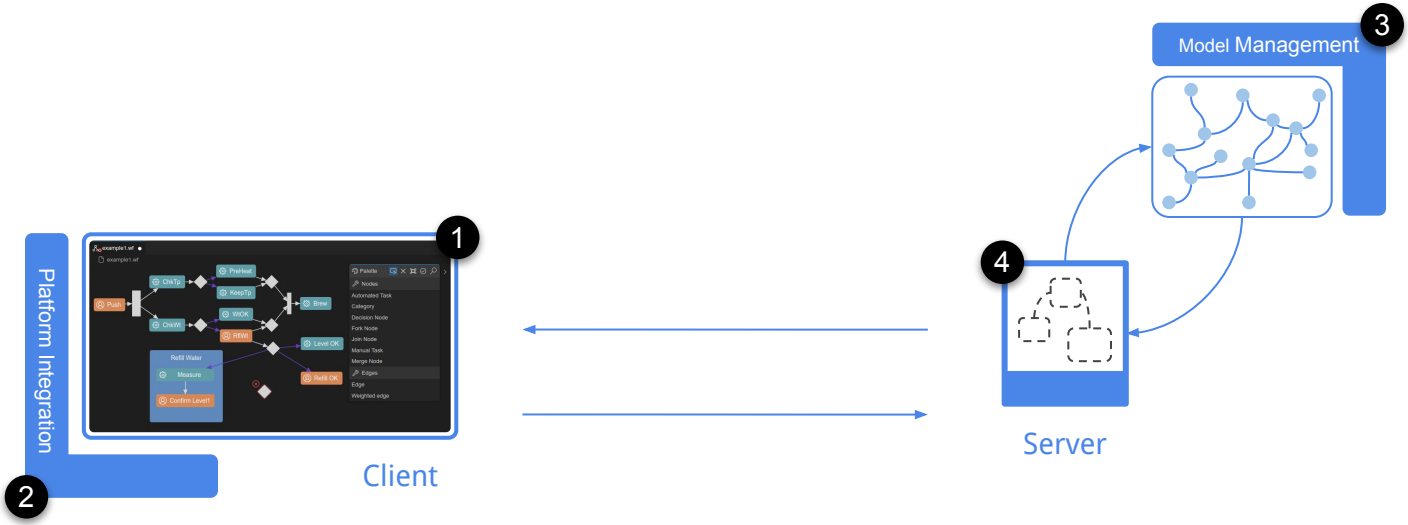
Why Flexibility is Key

- Not just about getting onto web stack / cloud
  - Architectural paradigm shift
  - Modern tech stack: fluid and diverse
  - Modularity and combinability

- Diagram editors: Specific to language by nature
  - Different domains
  - Different data sources
  - Different workflows
  - Different integrations with other tool components



Flexibility in GLSP's Architecture



Full Flexibility and Customizability on the Client

- Direct access to excellent base technologies
  - Customizable editing tools with Typescript
  - Custom UI controls with HTML
  - Dynamic SVG views and CSS

Demo

- No limiting abstraction layers in the middle
  - Well known technologies
  - Benefit from full power
  - Great debugging experience

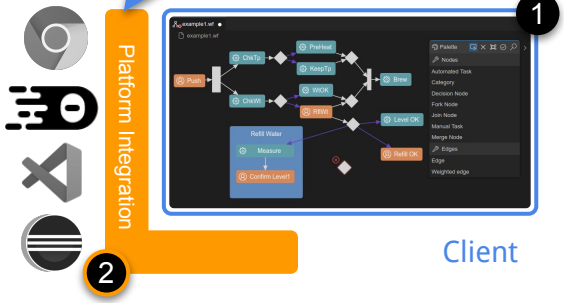
Maximum Reuse Across Tool Platforms

Editor registration, global menus, platform styling, etc.

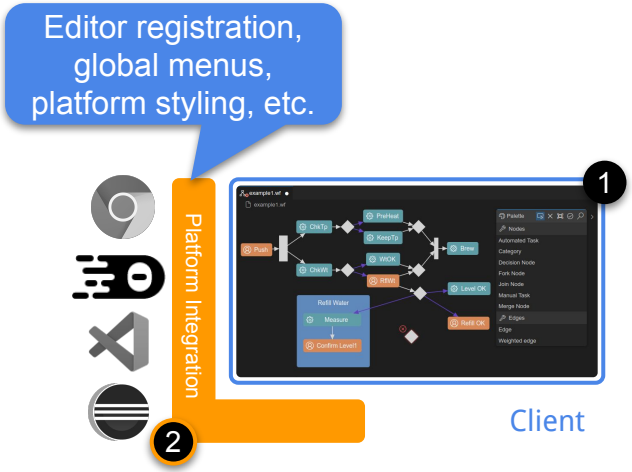
Functionality expected from the platform

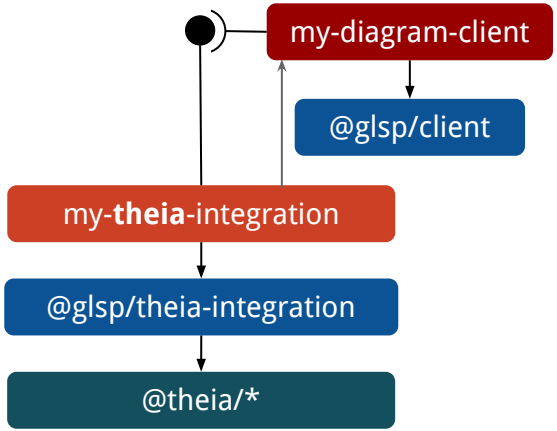
my-diagram-client

@glsp/client

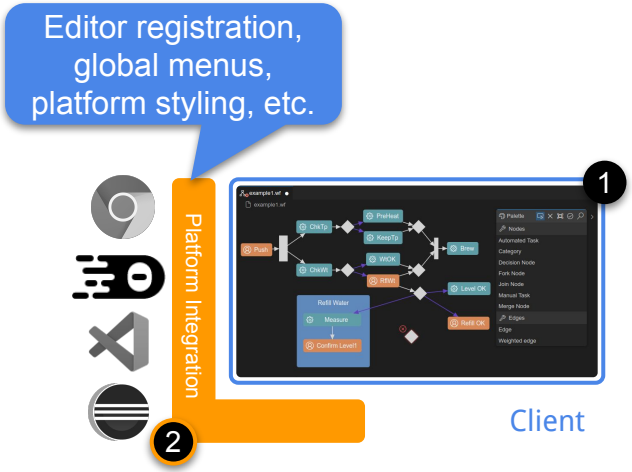


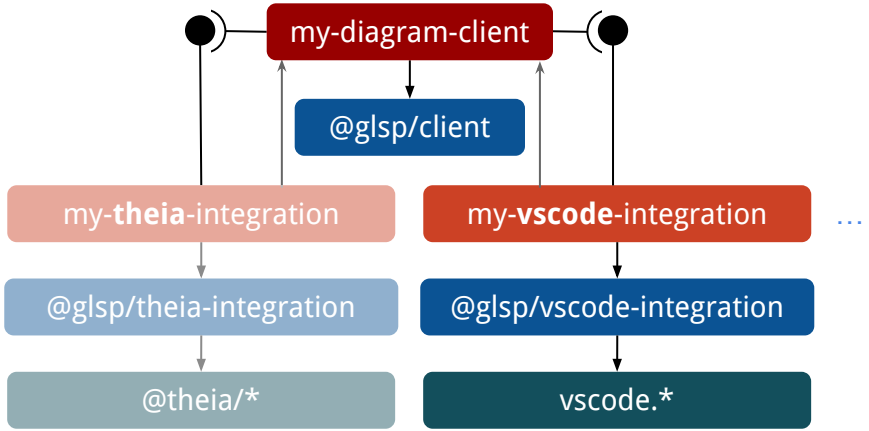
Maximum Reuse Across Tool Platforms





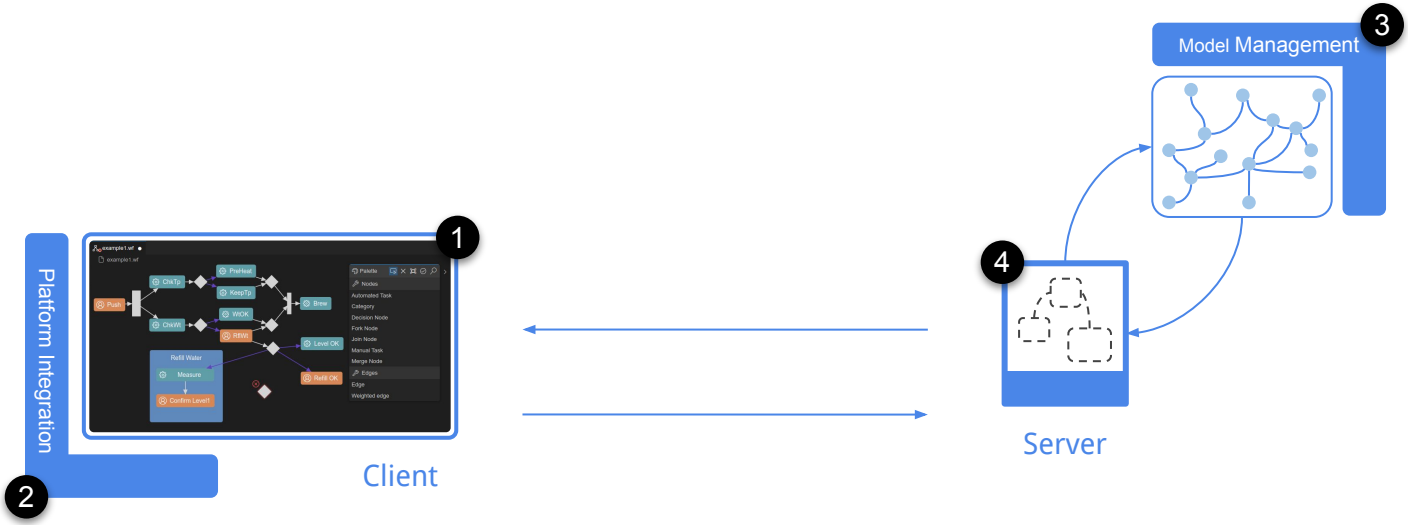
Maximum Reuse Across Tool Platforms





Demo

Flexibility on the Server



Model Management is Your Choice

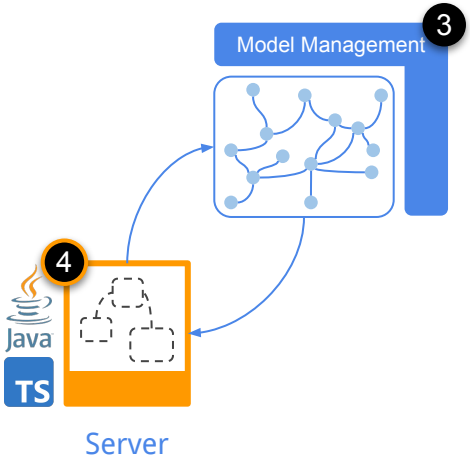
- Model Management
  - Format, structure, framework
  - Local filesystem or remote
  - Shared across users or isolated

- Base modules available
- Facilitates migration
- Enables reuse across multiple deployments

See Project Templates

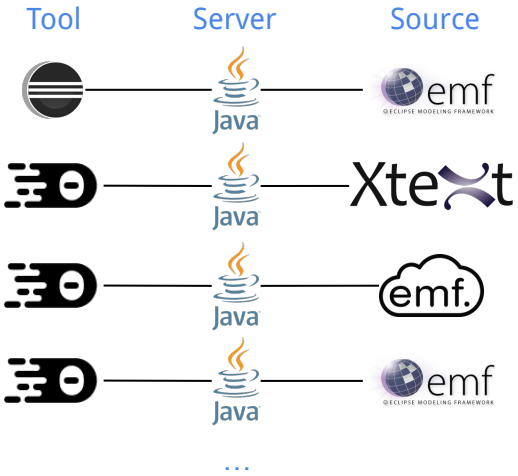
A new Server Framework alongside Java

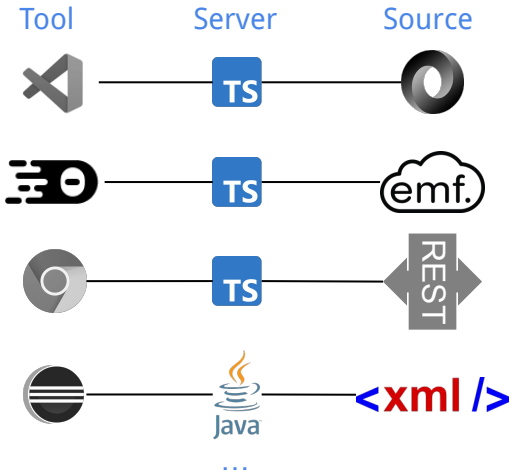
- GLSP servers can use any language
  - Protocol and some IO (e.g. socket)
  - More efficient to use existing base framework
- TypeScript GLSP Server Framework (1.0)
  - Homogeneous dev env for client & server
  - No need for a JVM on the user machine
  - Opens door to new deployment options



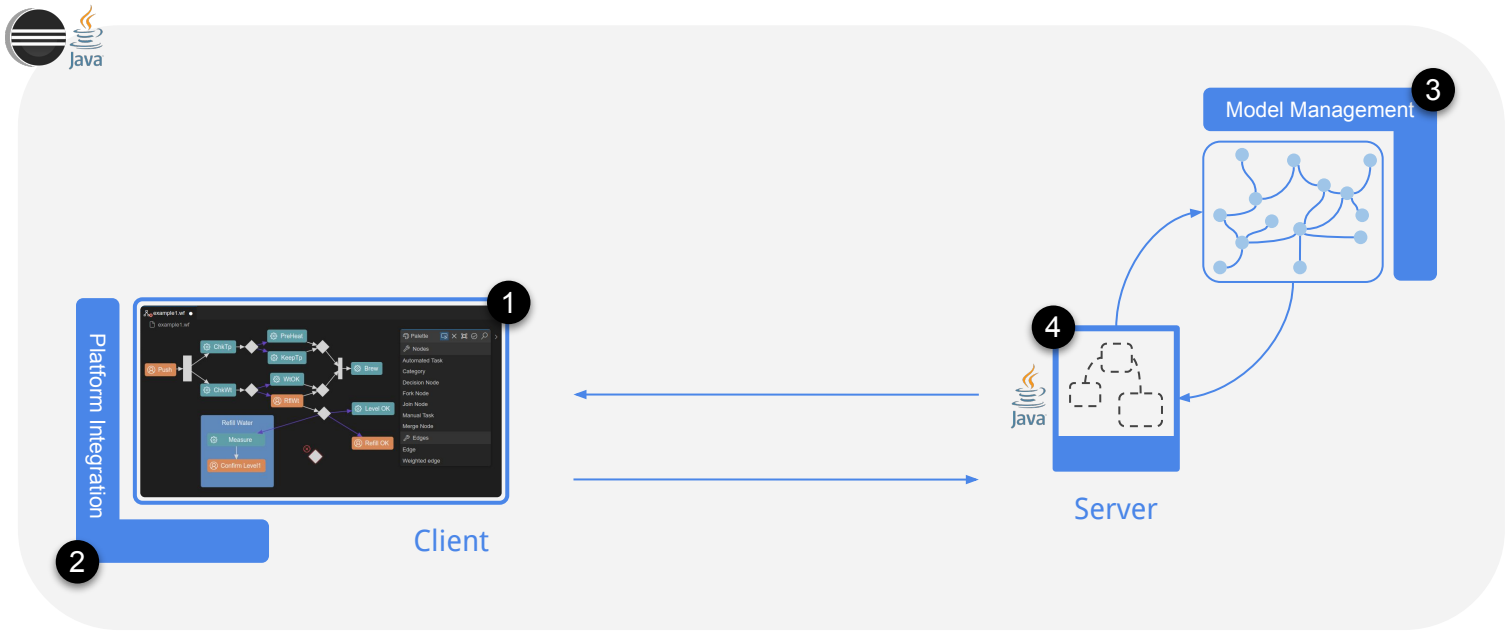
Demo

Deployment Options





Deployment Options



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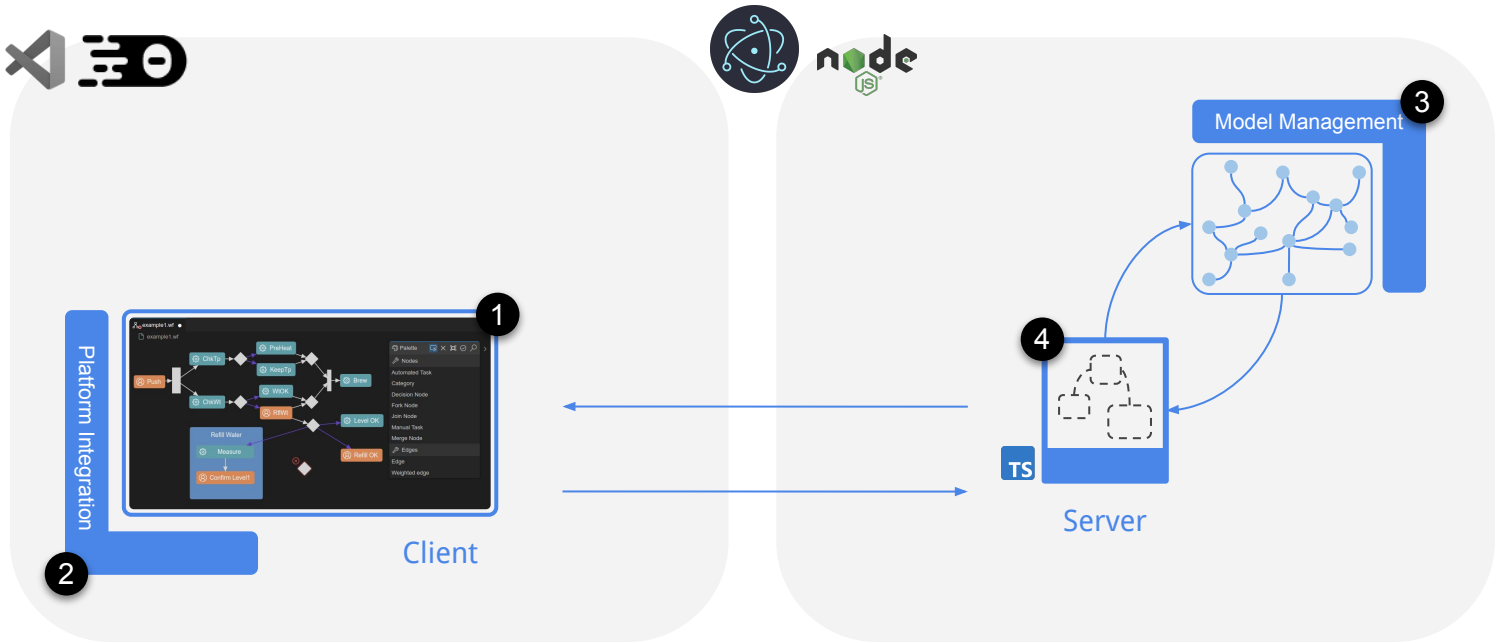
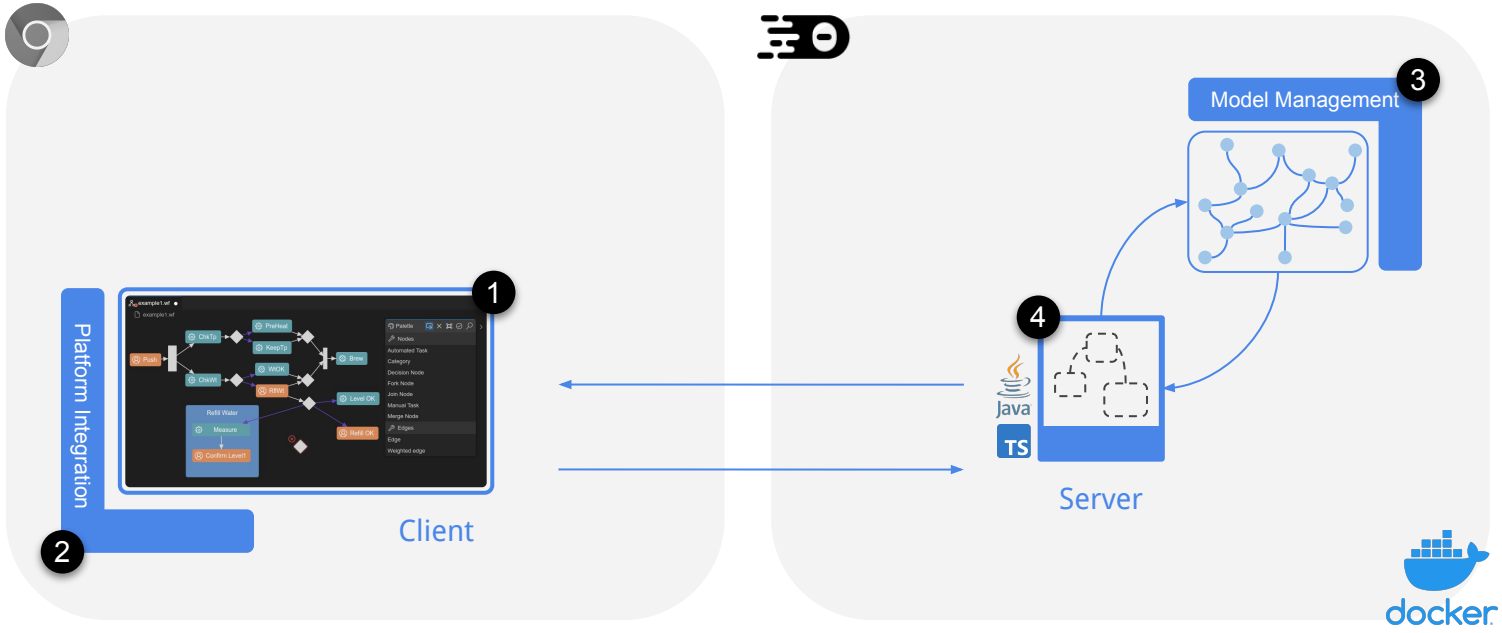
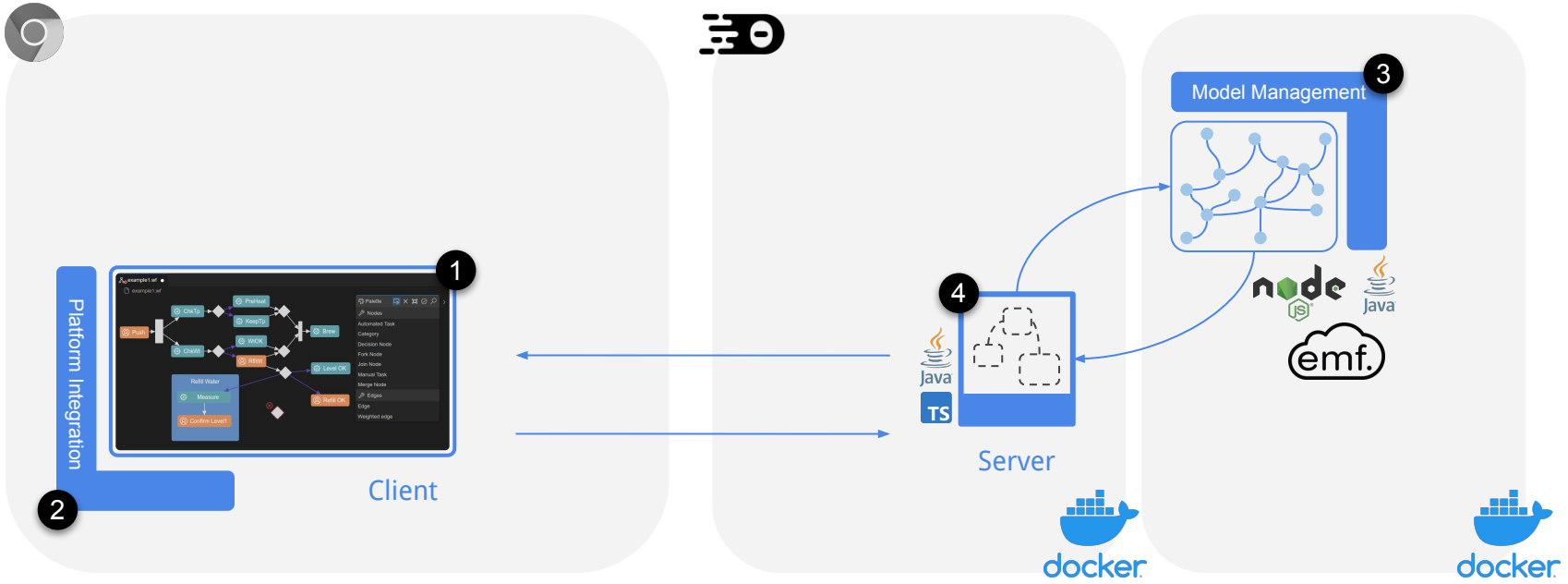


Deployment Options



Deployment Options

Theia.cloud - Running Theia-based products in the cloud
Tomorrow, 17:00 CET, Bürgersaal 2



Deployment Options

Demo

Conclusion

- Flexibility across all levels is key
  - Modern technology stack: more fluid and diverse
  - Multiple deployment / distribution channels
- Getting started is easier than ever
  - API stability with 1.0
  - Documentation
  - Project templates
- **Try it out and get in contact with us!**

  https://www.eclipse.org/glsp

Related Talks & Events

Getting started with Theia
The nextGen Eclipse Platform
Today, 10:45 CET

Introducing Eclipse CDT.cloud
C/C++ tooling in the web
Today, 11:45 CET

BoF: Building (web-based) tools with Eclipse
Today, 19:30 CET, Silchersaal

Theia.cloud - Running Theia-based products in the cloud
Tomorrow, 17:00 CET, Bürgersaal 2

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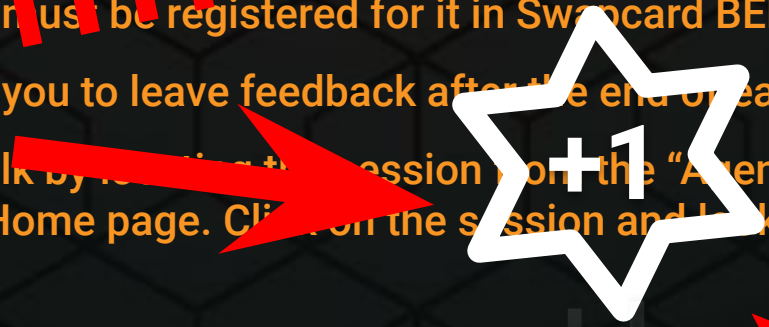

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