

IOT BZH

X(cross) Development System make AGL application development easier



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X(cross) Development System (XDS)

- Dedicated to Applications Developers
 - enable apps developer without Yocto skills
- Cross-platform build using AGL SDK toolchain
- Secure packaging (.wgt files including signatures)
- Deploy on development boards (or Qemu image)
- Remote debugging from IDE
- Easy target access (console, SSH, ...)
- Developer environment is a standard IDE
- Dashboard Web App to manage configurations and trigger actions
- Provide an XDS API
 - ie CI workflows or specific environments

Key Features

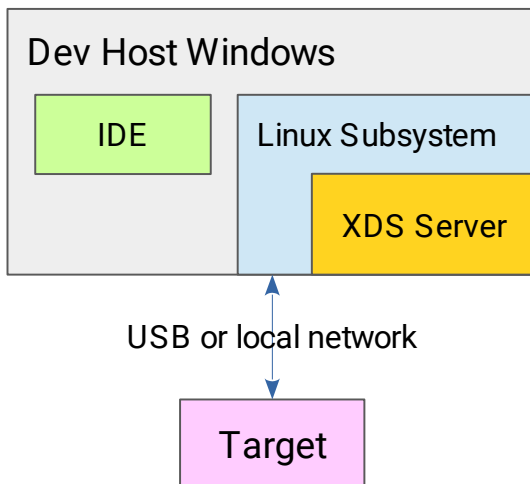


- **Multi-platform** : no dependencies on developer host (Linux / Windows / MacOS)
- **Easy to setup**
Near-zero install, no admin privileges required
- **Application sources remain local**
Compatibility with existing IT policies (e.g. corporate backup, git, ...)
- **Cross toolchain & tools embedded in a container** :
 - Local : run locally (local subsystem, virtual machine, docker container ...)
 - On-premises : run on a local build server
 - Cloud : SaaS
- **Leverage specific OS capabilities** where applicable (e.g. Linux for Windows Subsystem, docker)

Targeted Use Cases

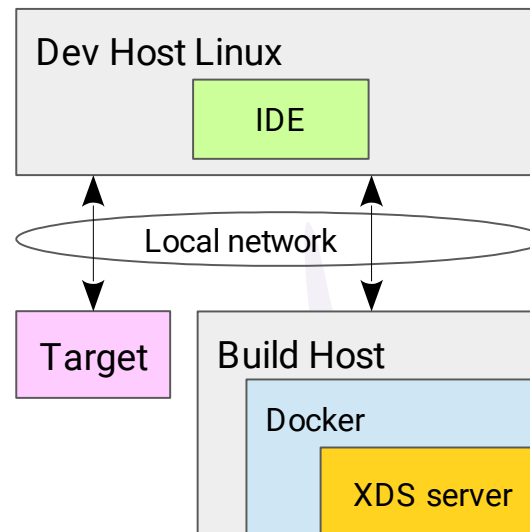
Single Host mode

- Host: Windows
- IDE: Eclipse
- Container: Linux Subsystem
- Sources: shared through native access



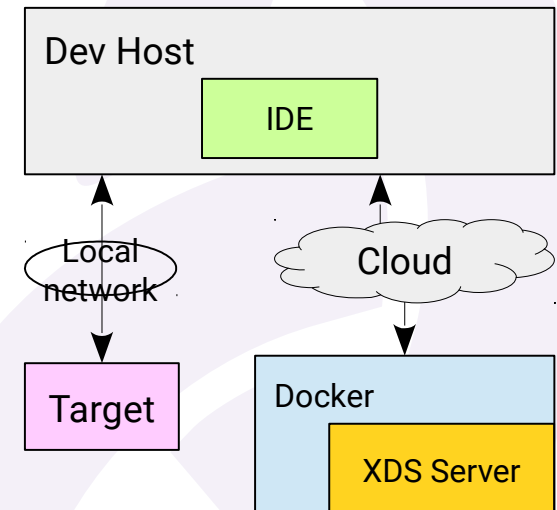
Local Network mode

- Host: Linux
- IDE: Visual Code
- Container: Docker
- Sources: shared through docker volume

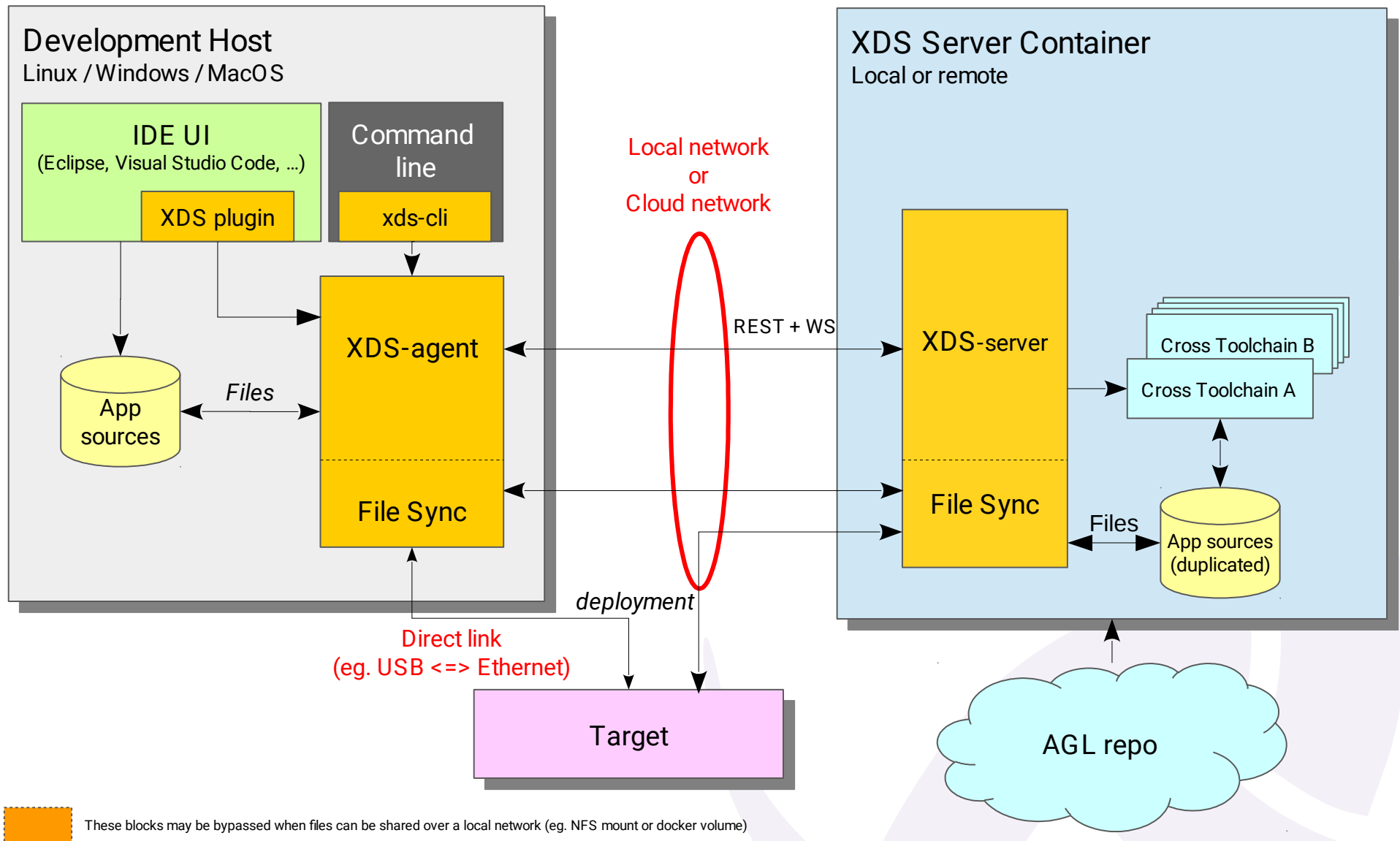


Cloud mode

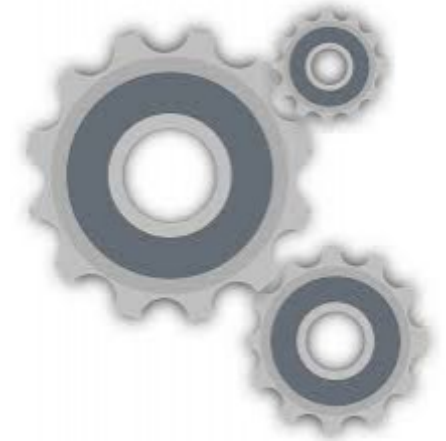
- Host: Linux
- IDE: Eclipse
- Container: Docker running in the Cloud
- Sources: shared through sync tool



Architecture



XDS Implementation

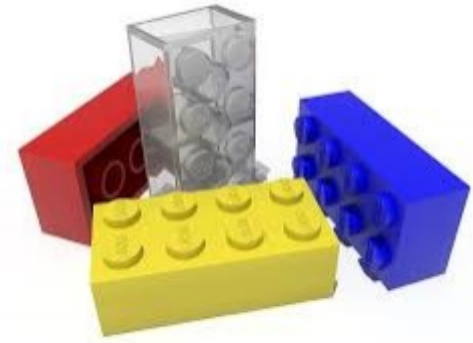


- Written in GO
(portable Linux/Windows/MacOS)
- Dashboard (webapp Angular4, TypeScript 2) to make development setup easier
- REST API + WebSocket (socket.io)
- File synchronization based on Syncting [1] to support Cloud model
- XDS server integrated into AGL SDK docker image (see flavour xds [2])

[1]: <https://syncting.net/>

[2]: <https://git.automotivelinux.org/AGL/docker-worker-generator/>

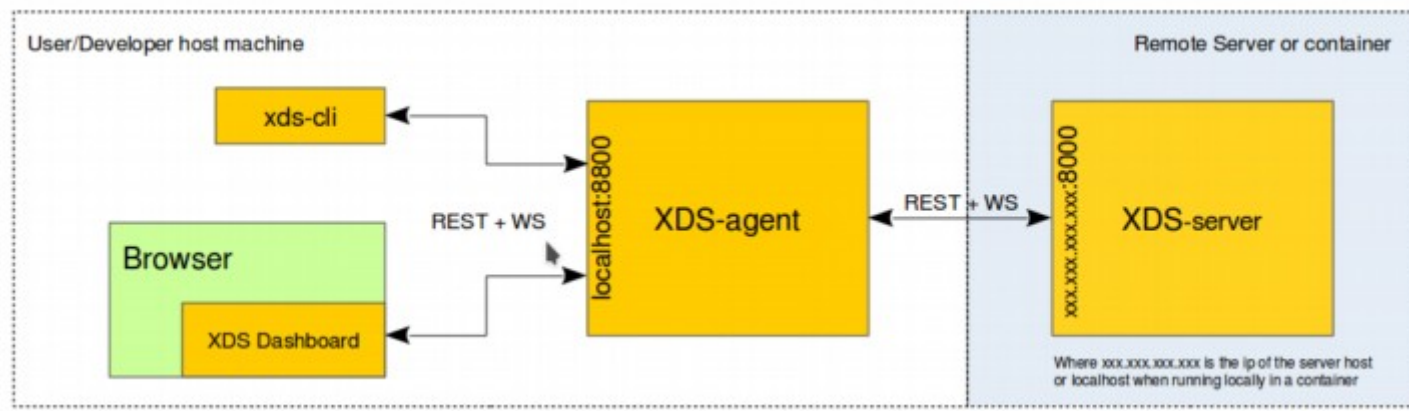
XDS building blocks



- **xds-server**
 - Core of the system, running in container:
 - REST API interface over HTTP to config and trigger commands
 - Websocket to get asynchronously data (commands output) or events (commands exit)
 - Control file synchronizer (Syncting) on server/ in container
 - Manage (install, list, remove) AGL SDKs
- **xds-agent (client)**
 - Client side part, running on developer host.
 - Provide Dashboard as a webapp
 - Control file synchronizer (Syncting) on developer's machine
 - Target terminal (*work in progress*)
- **xds-cli**
 - Command line tool for XDS.
- **xds-gdb**
 - Command line tool to allow application debugging (based on gdb).

Develop AGL app with XDS

- 1) Install xds-server on a build server machine
- 2) Install xds-agent and start-it on your machine
- 3) Browse XDS dashboard: <http://localhost:8800>
- 4) Add a new project
- 5) Cross build/compile your project using either :
 - 1) Dashboard build page
 - 2) IDE using xds-cli
- 6) Deploy app
- 7) Source debug from IDE (xds-gdb)



Available as today

- Release Candidate 1 (v1.1.1)
 - Pre-build docker image or VM appliance for XDS server
 - Packaged Multi-platforms (Linux / Windows/ MacOS) host tools : xds-agent, xds-cli, xds-gdb
 - Supported file sharing: Cloud mode or path mapping
 - Command line tool (xds-cli) or Webapp (Dashboard)
 - IDE integration (manual setup)
 - Debugging mode (based on gdb and AGL app-templates)
 - Target setup and target terminal integration in dashboard

Links to know

- User's guide and more documentation online:

<http://docs.automotivelinux.org/docs/devguides/en/dev/#xcross-development-system-user's-guide>

- Pre-packaging XDS-Server

- Docker container

http://docs.automotivelinux.org/docs/devguides/en/dev/reference/xds/part-1/2-1_install-xds-server-docker.html

- VM Appliance

http://docs.automotivelinux.org/docs/devguides/en/dev/reference/xds/part-1/2-2_install-xds-server-vm.html

- Binary packages available for Linux distros on openSuSE Build Service:

<https://build.opensuse.org/project/show/isv:LinuxAutomotive:app-Development>

- Sources available AGL on Gerrit src

<https://gerrit.automotivelinux.org/gerrit/#/admin/projects/?filter=xds>

Roadmap

Release v2.0.0 (June 2018)

- Collecting / Tracing data (based on Collector and Supervision)
- Bug fix

Some other improvements

- Dashboard and terminal integration improvements
- Support multiple file sharing (simple path-mapping, NFS, syncthing)
- Better integration in IDE (templates)
- Improve/document debugging support
- Document REST API



Gulf of Morbihan, south of Brittany, France