

Introduction to Chor

A video tutorial

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About Chor

- A new programming language for concurrent communicating systems.
- Based on **choreographies**: global descriptions of systems.
- Formally specified.
- Supported by an Eclipse-based IDE.
- Developed following discussions both in the Academia and the Industry.
- Open source.
- Still a prototype, but rapidly evolving.

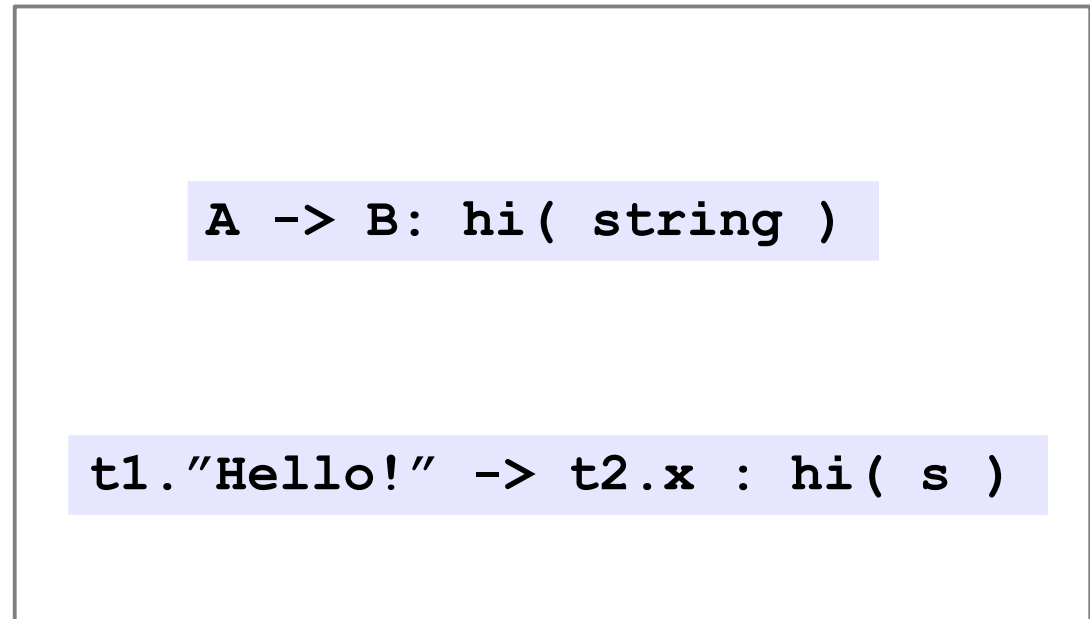
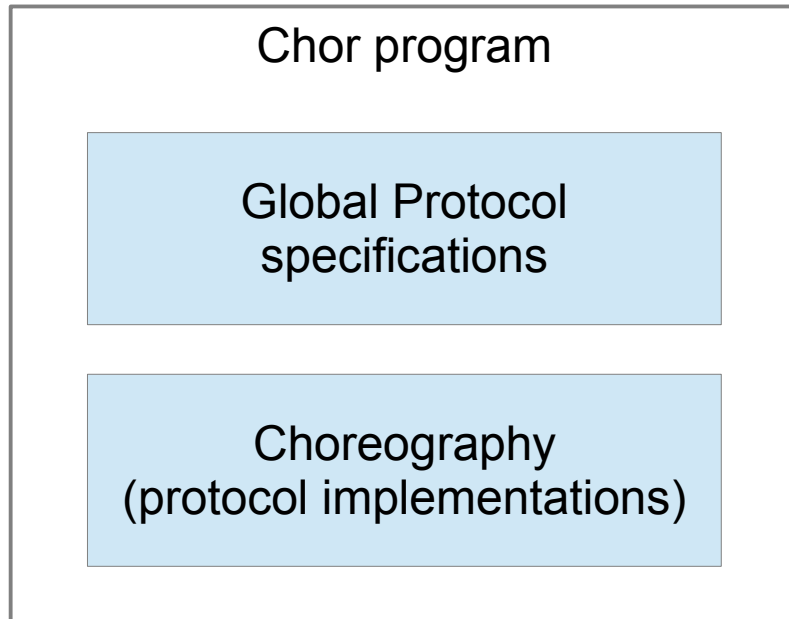
Why Chor? Some problems it solves...

- **Protocols:** multiparty protocols are usually informally specified, and can be hard to implement.
- **Solution:** Chor allows you to write protocol specifications, and check your programs for compliance.
- **Deadlocks:** concurrent programming is prone to writing deadlocks, and these can be very hard to detect.
- **Solution:** Chor programs are statically checked to be deadlock-free.
- **Productivity:** prototyping complex distributed systems can be a long process, when there are many entities to be implemented.
- **Solution:** Chor defines the behaviour of all entities in a single program, and then generates their code automatically.
- **Clarity:** understanding how distributed entities will interact can be hard, since you have to match their I/O communications manually.
- **Solution:** Chor programs make this matching explicit.

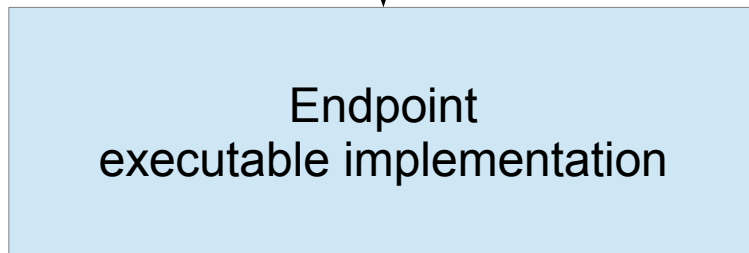
Development methodology

Artifacts


Examples

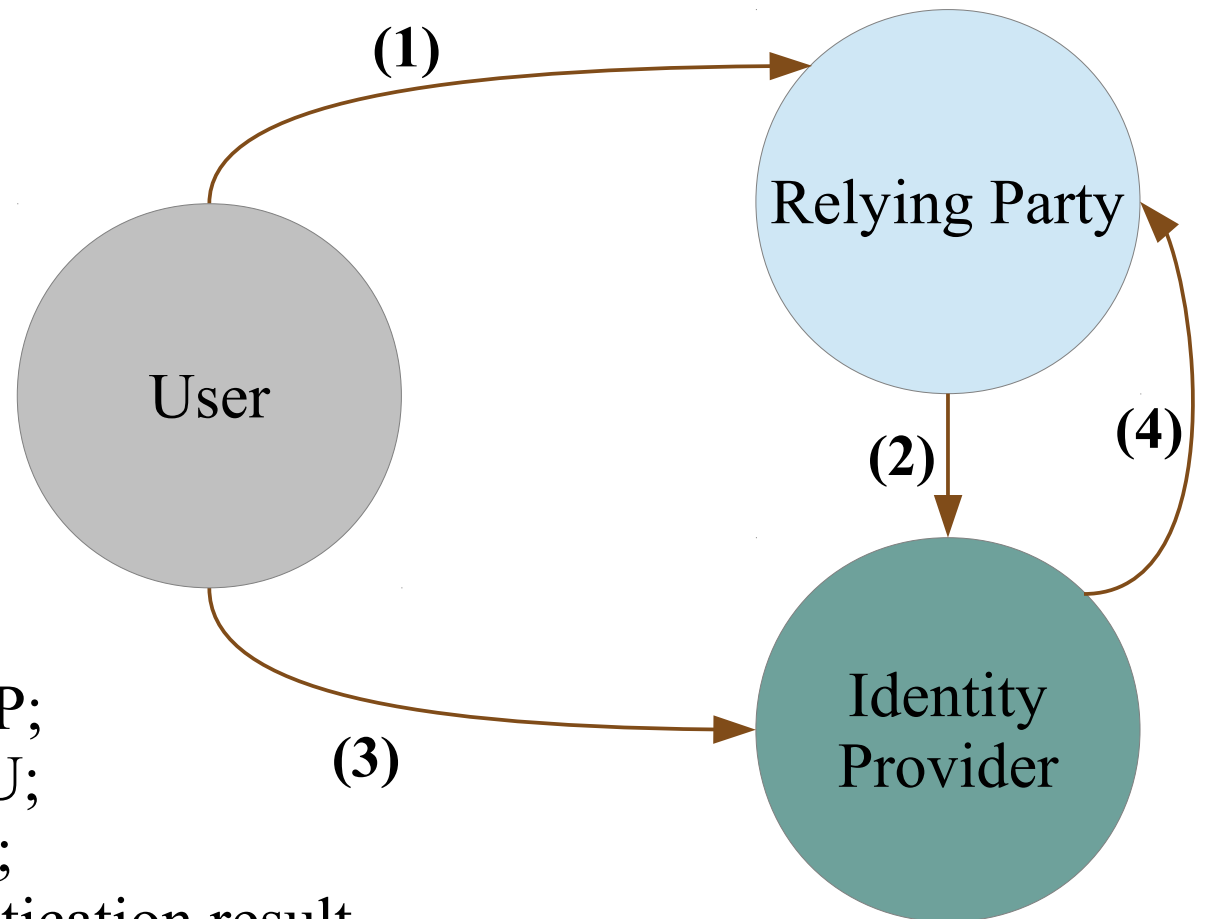


Endpoint Projection
(compilation)



Distributed Authentication

- A distributed authentication protocol, inspired by 
- A service (called **Relying Party**) delegates authentication to another service (called **Identity Provider**).



- (1) U(ser) requests access to RP;
- (2) RP asks IP to authenticate U;
- (3) U sends her password to IP;
- (4) IP notifies RP of the authentication result.

Endpoint Implementation

- Our projection supports the Jolie language.
- You can edit the projected Jolie code to integrate it with many different deployment setups, e.g. HTTP sockets or Bluetooth.
- Through Jolie, we support many application domains, from multicore applications to distributed service-oriented architectures.
- Chor is language independent, so we plan to extend projection to other frameworks in the future.



More information at...

- **Website:** `http://www.chor-lang.org/`
- **Mailing List:** `chor-devel@lists.sourceforge.net`