Supporting Communities in Programmable Grid Networks: gTBN

Application 3 can communicate with Application 2 in community B by using the associated (blue) token. To communicate with Application 1, the message needs to contain both tokens of communities A and B.

Binding applications to lightpaths: magic-carpet

1 - User registers every application type which requires a lightpath onto carpet; e.g., application name, port numbers;
2 - CarpetD requests a lightpath for one application (as part of the registration process). It receives a pair (GRI, Key) from NSP;
3 - CarpetD prepares the Magic-carpet for the specific application;
4 - The user starts the application on the Magic-carpet environment;
5 - When the application opens a socket and the carpet detects a bind to a lightpath, then the TB (Token builder) module computes and inserts a Token into each outgoing packet.

1 – User applications (A, B, C) request paths to applications on hosts D, E across multiple network domains. Applications may share lightpaths;
2 – ForCEG authenticates the user’s applications and requests paths to the Harmony authority on their behalf;
3 – Harmony-IDB prepares all intermediate domains involved in the path provisioning with the requested credentials (GRI, TokenKey);
4 – ForCEG provisions the data-plane (TBS-IP) that authenticates and routes application traffic.

1Mihai Lucian Cristea, 2Rudolf Strijkers, 3Yuri Demchenko, 4Cees de Laat,
4Evangelos Haleplidis, 5Alexander Willner, 6Joan Antoni Garcia, 7Jordi Ferrer Riera

Contact: m.l.cristea@uva.nl
www.cristomatics.eu