Formal Languages in IETF Documents

Stephen McQuistin
Colin Perkins
University of Glasgow

Marc Petit-Huguenin
Impedance Mismatch

Overview

- Want to use formal and structured languages to improve the quality of standards produced

- Generate documents written using formal languages or parse structures from within documents

- Use tooling to generate parser code or to prove properties about the protocols being specified

draft-mcquistin-augmented-ascii-diagrams

- Machine-readable format for specifying the syntax of protocol data units

- Packet header diagrams as they are (mostly) already written, just need consistency for parsing

- Can make simple but effective checks (e.g., does the diagram match the text?)

- Generate parser code from the specification

draft-petithuguenin-computerate-specifying

- Write your Internet-Draft in AsciiDoc (a markdown variant based on DocBook5)

- In the same file add formal protocol specifications in Idris with Dependent and Linear Types.

- Generate an xmlrfc3 file with:

  - examples that are correct by construction;

  - verified formal languages definitions in ABNF, etc…;

  - formal proof of the application of Postel's Law;

  - and much more…

across the road, downstairs
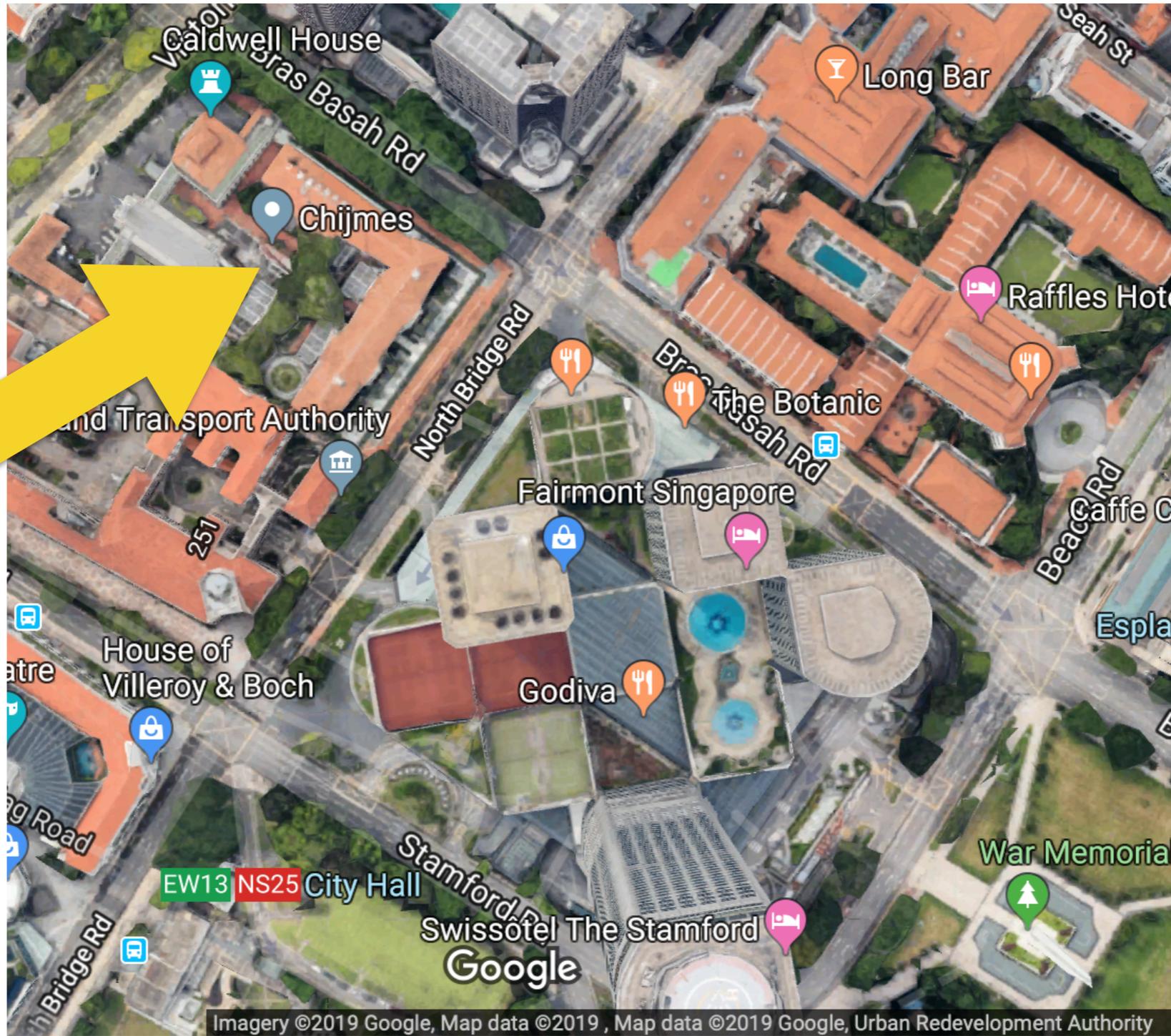
8pm on Thursday
The Winery at CHIJMES