Asociación Argentina de Carreteras

WORLD ROAD ASSOCIATION MONDIALE DE LA ROUTE

Vialidad Nacional

November 6th - 8th, 2013 Hotel Panamericano – City of Buenos Aires, Argentina

"URBAN MOBILITY, ROADS NETWORK OPERATION AND ITS APPLICATIONS"

Online Data Integration with TCIP Protocol

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Plan

- Background and Objectives
- Technical Aspects and Challenges
- Non technical Aspects and Challenges
- Test and Evaluation
- The Future

Background


CANADA
QUÉBEC
Vancouver
Montréal
Boston
New York
Chicago
Washington
1 000 km
ÉTATS-UNIS
Atlanta
2 000 km
MEXIQUE
3 000 km
Mexico
4 000 km


NORTH SHORE
LAVAL
LONGUEUIL
MONTRÉAL
SOUTH SHORE

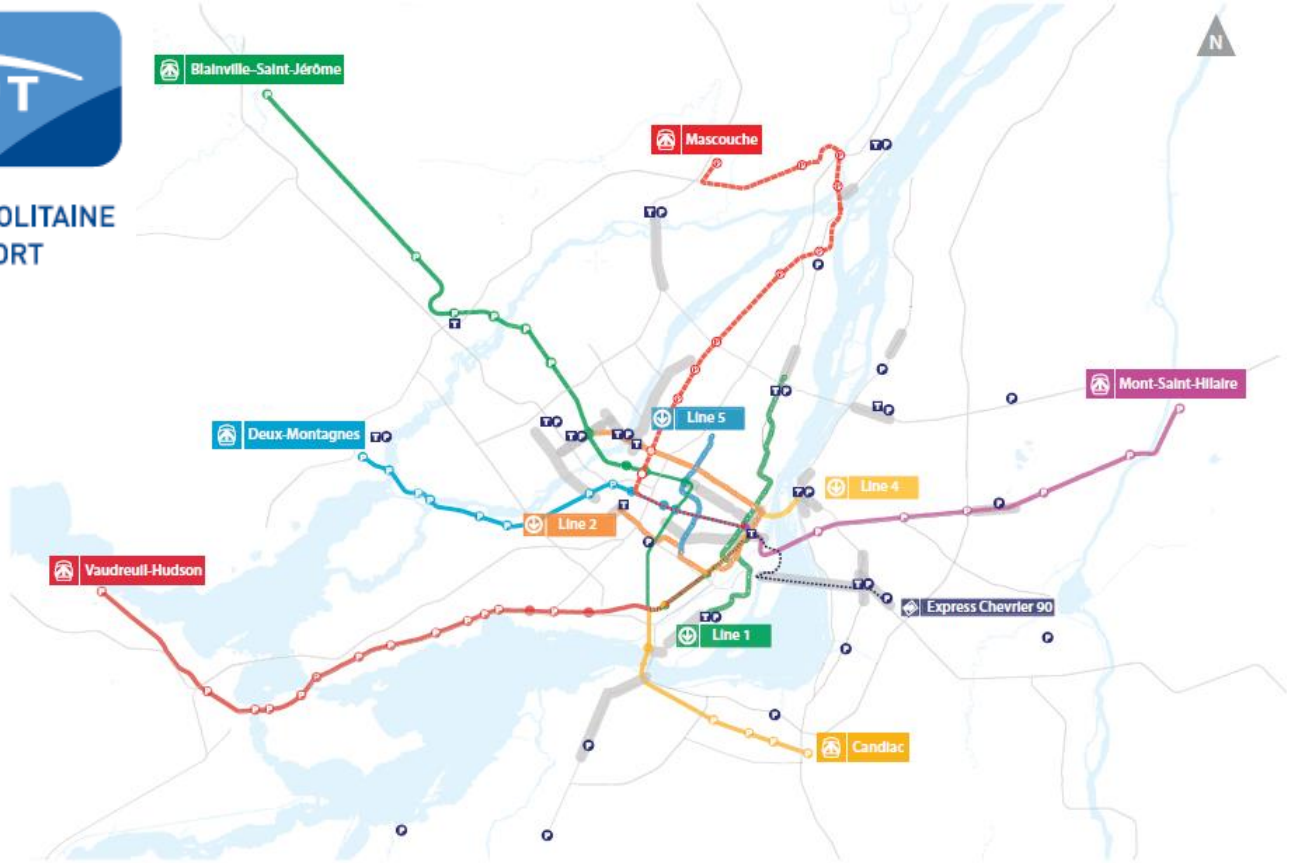
Background


Quai 5
Ligne
Départ
13:55
dès le 20 du mois précéd


N
CRTL
CITSV
CITL
STL
OMITSJU
CITVR
STM
RTL
CITCRC
CITPI
CITLR
CITROUS
CITSO
CITSL

Background

AGENCE MÉTROPOLITAINE DE TRANSPORT



THE CURRENT METROPOLITAN NETWORK

4	68	5	51	30,400	16	85	1
metro lines	stations	commuter train lines	stations	spaces in 61 park-and-ride lots	metropolitan terminals	km of reserved track	metropolitan express bus line

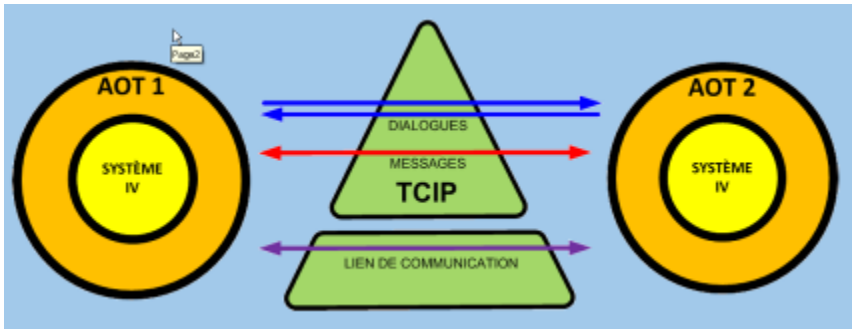
Background

- April 2011 : a preliminary study regarding the integration of real-time information on service status between organising authorities.
- Meetings were held and allowed to establish the requirements for information exchanges between organising authorities in the short, medium and long term.
- In the short term, the main objective : exchange of information on transfer points between agencies

Objectives

- To integrate all available information between agencies in order to offer travellers a regional vision of public transport in real time via an integrated platform.

  - Transit Communications Interface Profiles (TCIP) developed by the American Public Transportation Association (APTA).



  - Real-time service status information (disruptions, estimated time of arrival) is targeted in these exchanges in order to allow an agency to broadcast information originating from another agency to travellers.

Technical Aspects and Challenges

- A pilot project linking the RTPIS of the AMT, the commuter train operator, with the RTPIS of the Société de transport de Laval (STL)

Technical Aspects and Challenges

- First challenge : developing a computer gateway for the exchange of information via the TCIP standard.
  - The scope of the pilot project : in a first phase, only the exchange of data between centres would be covered by the application of the NTCIP C2C standard.
  - Transfer points were selected: two metropolitan terminals and three AMT railway stations. For these transfer points, the information exchanged would be limited to service disruptions and estimated time of arrival.
  - Two TCIP messages were selected and configured with the TIRCE tool provided by APTA. The communication mode explored within the framework of the pilot project was Subscription.
  - Hardware and software architectures were developed
    - TCIP gateway and graphic interface
    - Production environment in each agency

Technical Aspects and Challenges

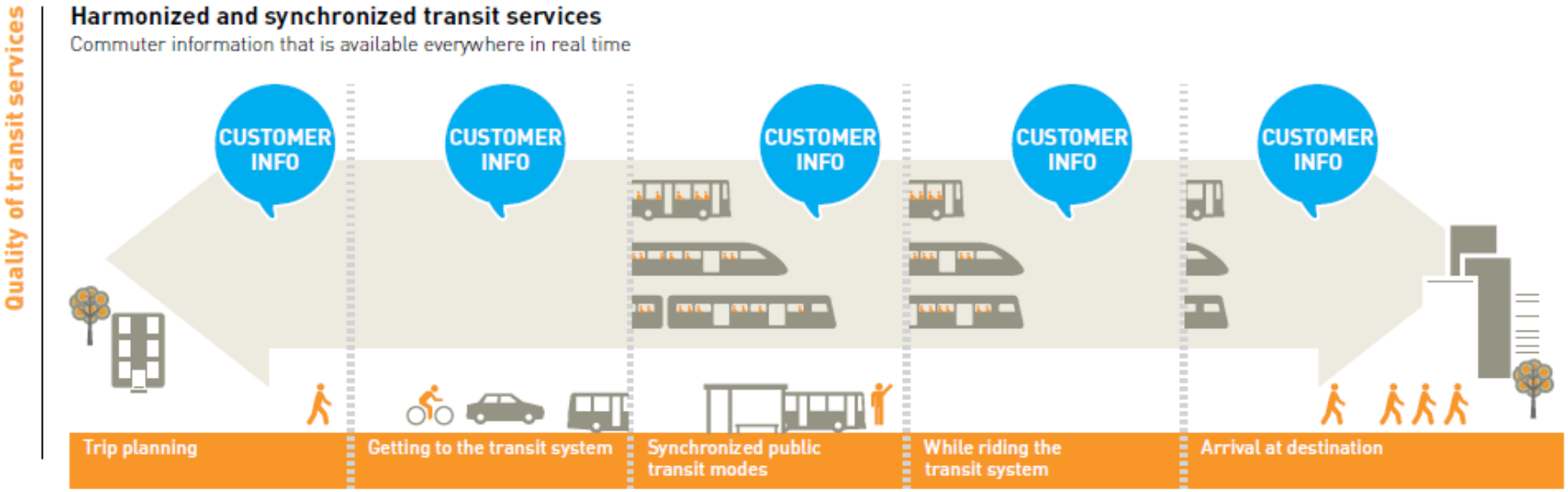
- Second challenge : extending the pilot project to display the information coming from the STL Synchro RTPIS regarding real-time bus service status on AMT's passenger information displays located at transfer points.

  - Adapt the AMT's Chronos RTPIS which broadcasts train information to LCD passenger information displays located in rail stations;
  - Adapt the RTPIS from the AMT's supplier which broadcasts bus planned information to the LED passenger information displays located inside and at the platforms of the two metropolitan terminals targeted by the project.

Technical Aspects and Challenges

- Results :
  - *“subscription* type *periodic “* replaced by *(query on demand)*
  - AMT's RTPIS was modified to connect dir the STL's RTPIS. This allowed capturing ar information on the AMT's LCD passenger rail station.
  - Supplier then modified the terminal RTPIS so a data on bus departures from the STL's TCIP ser LED passenger information displays.

Non Technical Aspects and Challenges



Test and Evaluation

- The pilot project has demonstrated that the TCIP standard is applicable to the context of public transport in the Greater Montreal Area
  - It is possible to obtain full cooperation from organising authorities that have a common goal;
  - It is possible to add an additional layer of software to an RTPIS to extract and format the data according to a standardised format;
  - The TCIP standard defines a format and data exchange mechanisms which are simple and easy to implement.

The Future

- During 2013, the pilot project extends to 2 other terminals as well as to 3 other stations.
- A customer survey in 2013 in order to evaluate customer satisfaction with the quality and readability of the new information broadcast at the sites targeted by the project.
- At the metropolitan level, the creation of additional web services has been planned to ensure integration to various existing RTPIS and is under development among the 15 organising authorities of the Greater Montreal Area.

The Future

- In the mid term, the objective is to provide travellers with integrated information regarding public transport for the Greater Montreal Area :
  - accessibility for passengers with reduced mobility;
  - location of infrastructures (e.g. park-and-ride lots, bus shelters, bicycle racks);
  - specific characteristics of infrastructures (e.g. heated bus shelter);
  - real-time space availability in park-and-ride lots.
- The information must be broadcast to travellers on a *website* and must be accessible via *smartphones*.
- The information platform for travellers must allow for viewing in *real time* the state of public transport service in the region, in addition to providing the necessary tools to plan an itinerary based on real-time information.

The Future

- For the long term, the main objective is to provide passengers with integrated multimodal information for the Greater Montreal Area :
  - traffic status;
  - location of parking lots and availability in real time;
  - obstacles;

  - information on the BIXI bicycle sharing system (location of stations, availability);
  - information on car-sharing systems such as Communauto.

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Thank you for your attention

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