RDF Stream Processing Workshop

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Why Streams?

Internet of Things
Sensor Networks
Mobile Networks
Smart Devices
Participatory Sensing
Transportation

"It's a streaming world!"[1]

Financial Data
Social Media
Urban Planning
Health Monitoring
Marketing

Della Valle, et al : It's a Streaming World! Reasoning upon Rapidly Changing Information. IEEE Intelligent Systems

Why Streams?

RDF

Go Web

Web standards
Data discovery
Data sharing
Web queries

Processing

Query languages
Query answering
Efficient processing
Query Federation

Integration

Semantics
Vocabularies
Data Harvesting
Data linking
Matching

Reasoning

Ontologies
Expressivity
Inference
Rule processing
Knowledge bases

The RSP Community

Many topics
- RDF Streams
- Stream Reasoning
- Complex Event Processing
- Stream Query Processing
- Stream Compression
- Semantic Sensor Web

Tons of work
- Research work
- Many Papers
- PhD Thesis
- Datasets
- Prototypes
- Benchmarks

W3C RSP Community Group

http://www.w3.org/community/rsp

Effort to **discuss standardize combine formalize evangelize** our work on RDF stream processing

The RSP Community

Some of the Work done…

- Use cases / requirements
- Existing approaches
- RSP Data model
- RSP query language
- RSP Serialization
- System Implementations

RSP Workshop: Contributions

- P3: **From Semantic Complex Event Processing to Ubiquitous Pragmatic Web 4.0.**
  A. Paschke and K. Teymourian
- P4: **CoDeR Model for Continuous Reasoning over OWL 2 RL Ontologies.**
  D. Monks
- P5: **On the Road to the Evaluation of RDF Stream Compression Techniques.**
  J. Arias, O. Corcho, J. Fernández, N. Fernández, A. Llaves and L. Sánchez
- P6: **Semantics and Complexity of RDF Stream Processing & Reasoning: Expression of Interest.**
  H. Beck, M. Dao-Tran and T. Eiter
- P7: **Scalability in RDF Stream Processing Systems.**
  A. Llaves and O. Corcho
- P8: **On the need for adaptivity in RDF Stream Processing.**
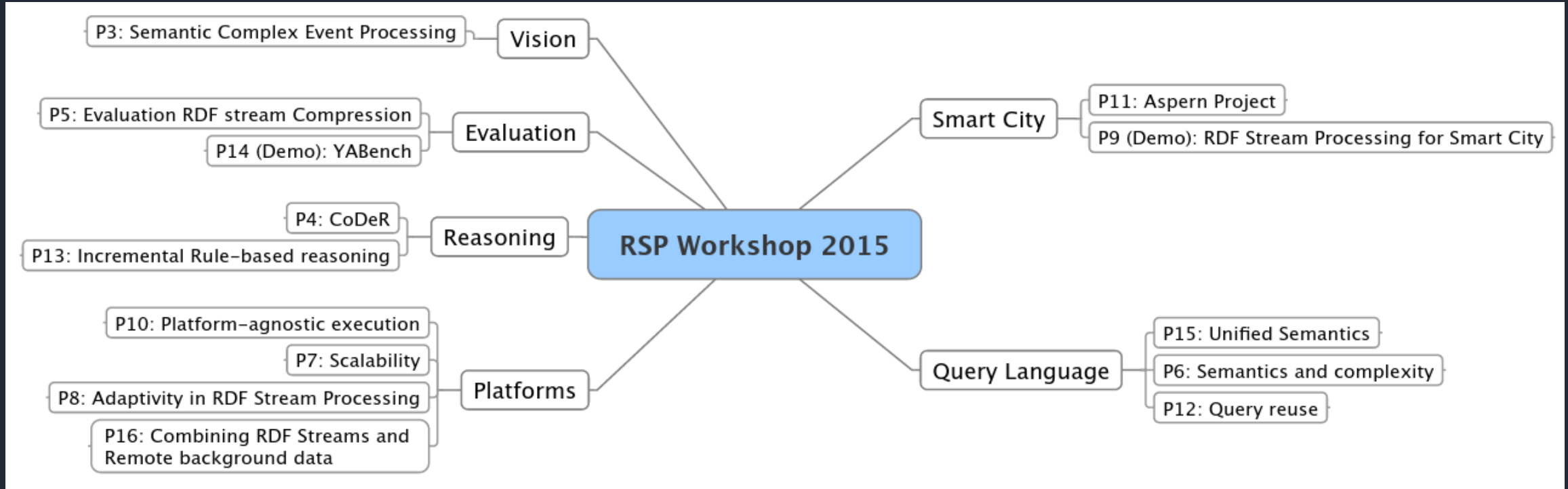 Z. Shamszaman, M. Intizar Ali and A. Mileo
- P10: **Platform-Agnostic Execution Framework Towards RDF Stream Processing.**
  D. Le Phuoc, M. Dao-Tran, C. Le Van, LT Anh, MN Duc, T. Tran Nhat and M. Hauswirth

RSP Workshop: Contributions

- P11: **The Aspern Smart City Project.**
  J. Xavier Parreira

- P12: **Sharing and Reusing Continuous Queries – Expression of Interest.**
  R. Keskisärkkä and E. Blomqvist

- P13: **Incremental Rule-based Reasoning over RDF Streams: An Expression of Interest.**
  R. Albeladi, K. Martinez and N. Gibbins

- P15: **Towards Unified Semantics for RDF Stream Query Processing.**
  D. Dell'Aglio, JP Calbimonte, E. Della Valle and O. Corcho

- P16: **On Combining RDF Streams and Remotely Stored Background Data.**
  S. Dehghanzadeh, D. Dell'Aglio, S. Gao, E. Della Valle, A. Mileo and A. Bernstein

- P14: **Demo: YABench – Yet Another RDF Stream Processing Benchmark.**
  M. Kolchin and P. Wetz

- P9: **RDF Stream Processing for Smart City Applications**.
  F. Gao, M. Ali and A. Mileo

RSP Workshop: Contributions

RSP Workshop

- 9:00–9:15 Opening
- 9:15–10:30 EoI: 8+2 min presentations
  - Query Language: P6, P12, P15
  - Reasoning: P4, P13
  - Smart Cities: P11
- 10:30–11:00 Coffee
- 11:00–12:00 EoI: 8+2 min presentations
  - Platforms: P10, P7, P8, P16
  - Evaluation: P5
- 12:00–12:30 Demo Session
  - P9: RDF Stream Processing for Smart City
  - P14: YABench
- 12:30–14:00 Lunch

RSP Workshop

- 14:00–14:30 Keynote by **Adrian Paschke**
- 14:30–15:30 Breakout groups, potential topics:
    - Query language and semantics
    - Serialisation/On the wire protocol
    - CEP layer on top of query language
    - Benchmarking/evaluation
- 15:30–15:45 Coffee
- 15:45–16:45 Break out groups continue
- 16:45–17:30 Report back

- Social meal in the evening