Information Management

When I learned to 'Think Big' … and 'Blue'

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Alumni Meeting
BTU Cottbus, Germany
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Agenda

- IBM
  - Size and locations
- Myself
  - How I got into IBM (US)
  - Sample projects I worked on
- BTU
  - How did studying at the BTU prepare me for the work
- IBM Academic Initiative

Who we are

- SWG employs over 50,000 professionals, including 26,000-plus software developers, 17,000-plus sales and technical sales professionals.
- IBM operates in more than 170 countries.
- IBM has 80-plus R&D Labs around the world that conduct software development.
- IBM has 40-plus innovation centers worldwide, including in key emerging markets.
- SWG has 30,000-plus business partners around the world.
- IBM has a growing ecosystem of 6 million developers worldwide; 1,600 developers join IBM's developer community each day; 400 of them are from emerging markets.

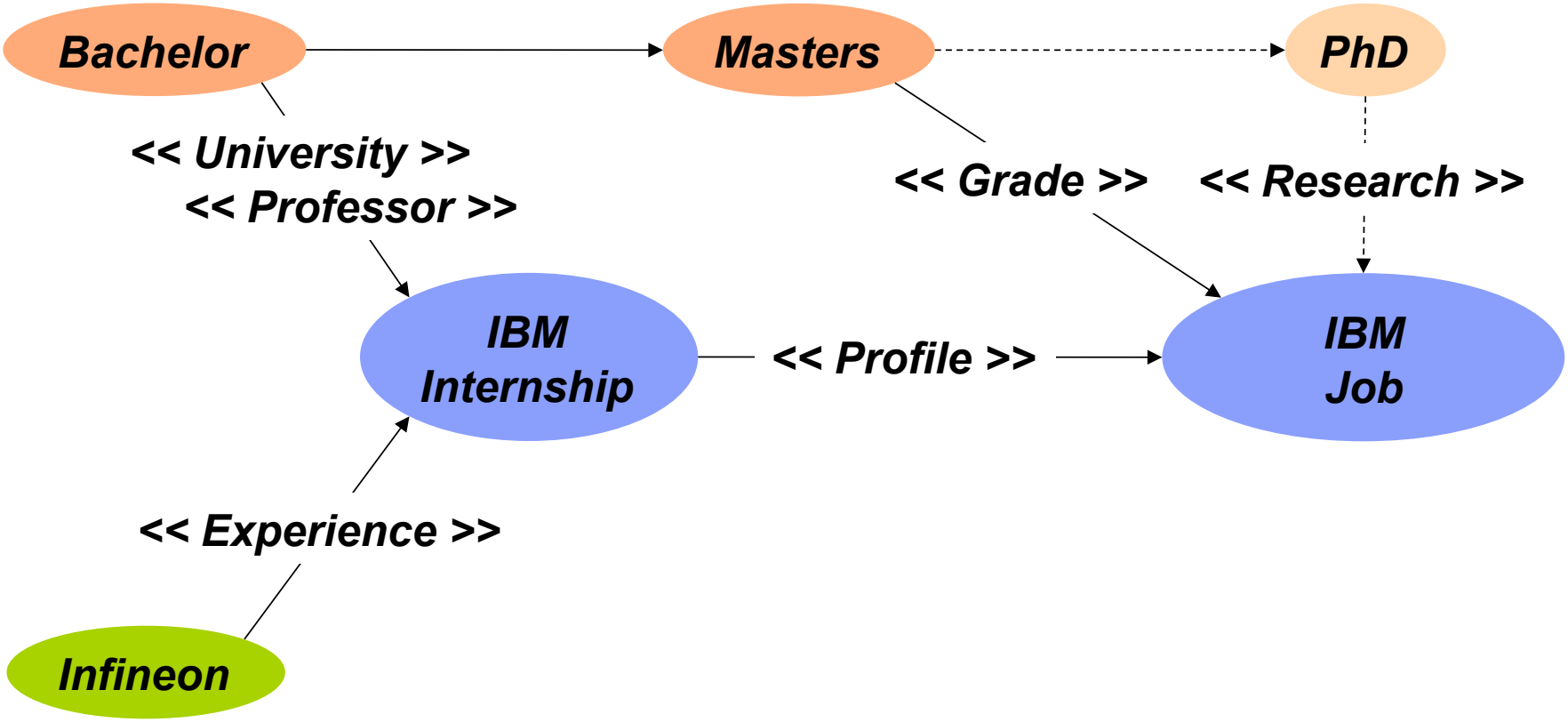
Leveraging IBM's Globally Integrated Team

50,000+ SW Employees Worldwide
26,000+ Developers
17,000+ Sales & Technical Sales
5,000+ Support Staff
***plus*… over 30,000 SW Partners**

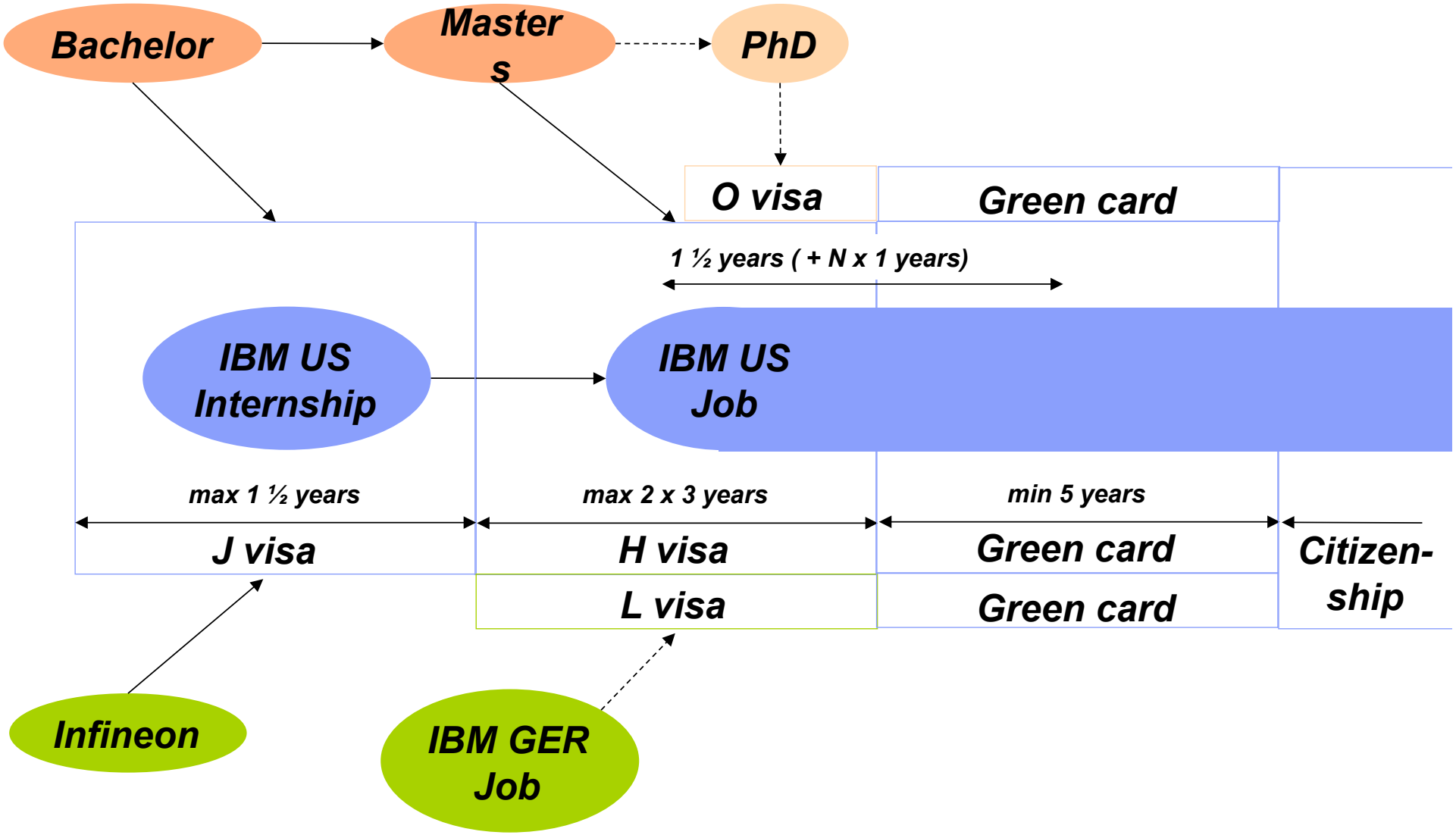
Major R&D Locations

350,000 + IBM Employees Worldwide
- 30,000 + Developers
- 100,000 + Sales, Support & Marketing

How I got into IBM



How I got into IBM US



Sample Projects I worked on

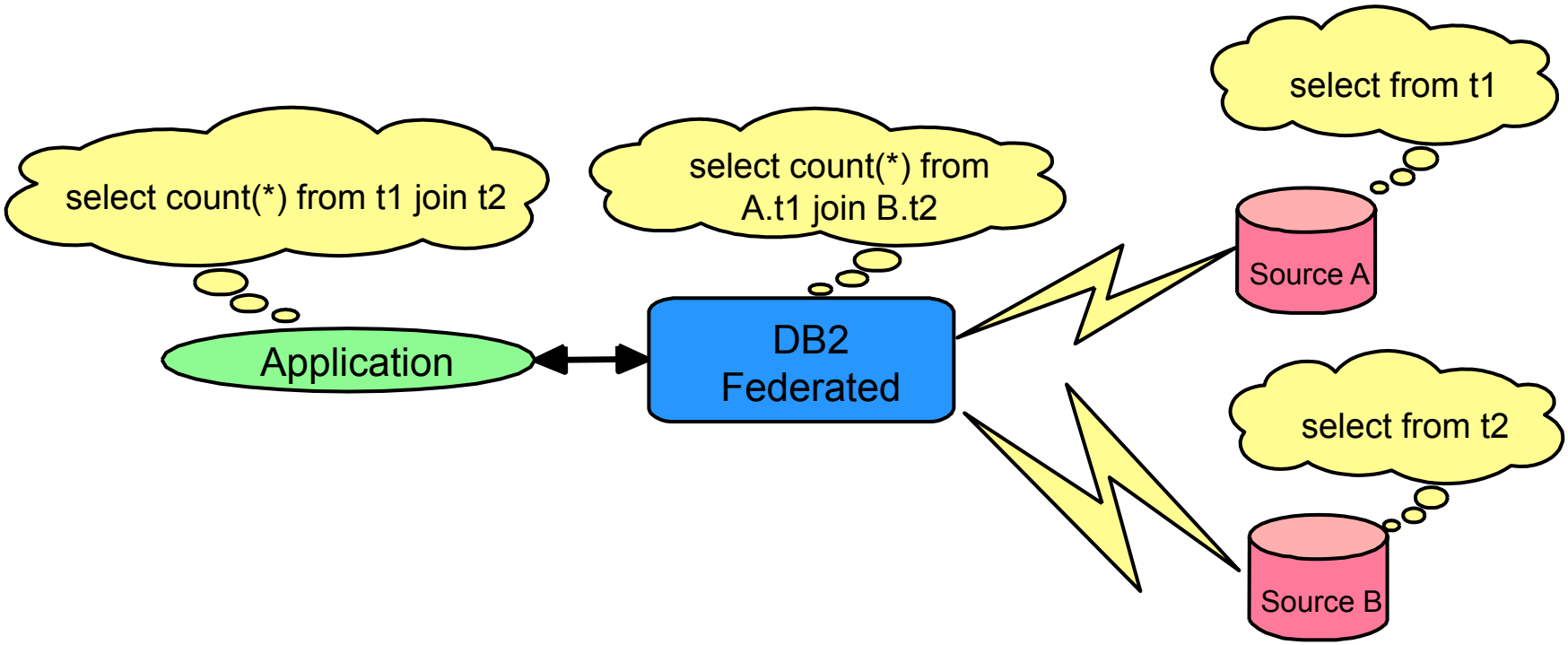
Progressive Query Optimization for Federated Queries

Prof. Dr. Volker Markl –TU Berlin
Stephan Ewen –TU Berlin
Dr. Vijayshankar Raman – IBM ARC
Holger Kache – IBM SVL

Published at VLDB 2006
Seoul, South Korea

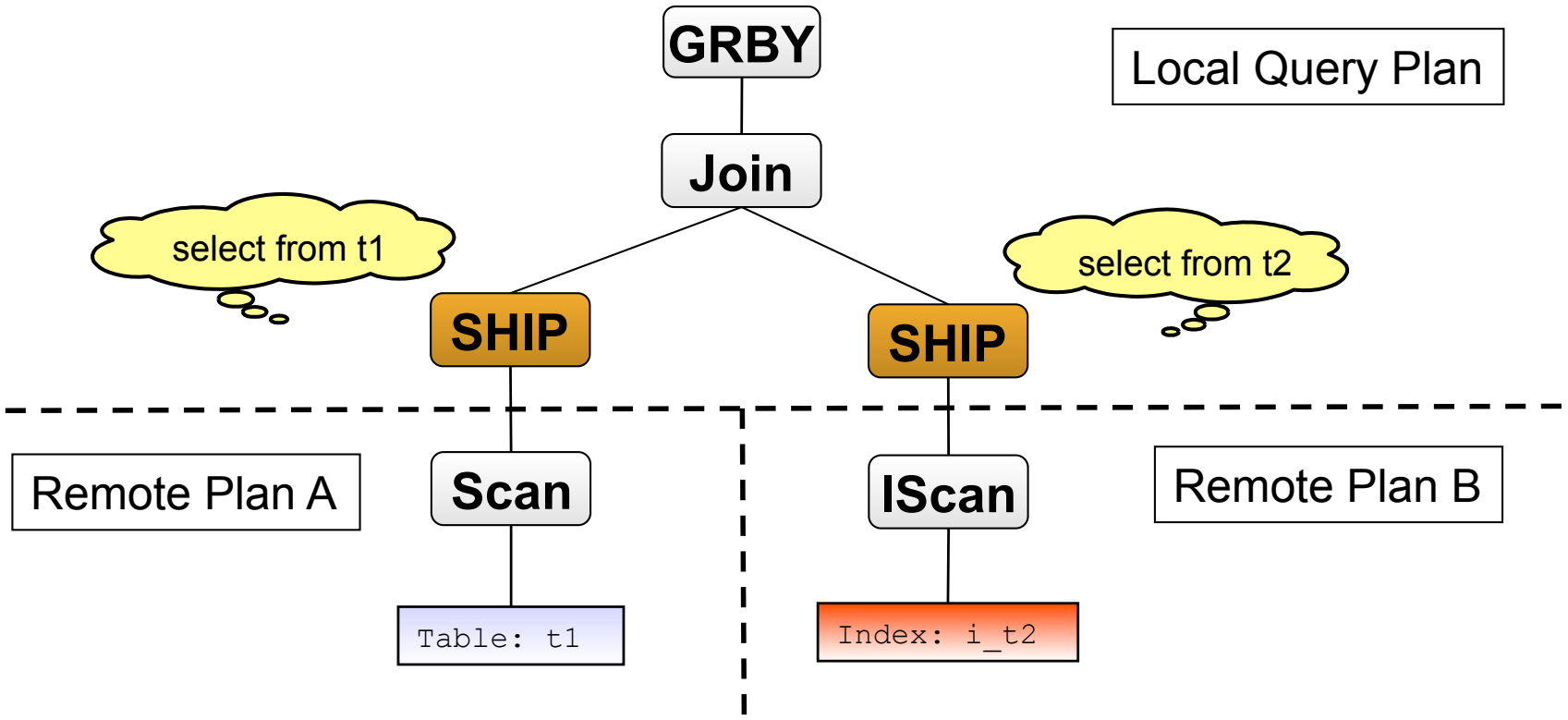
Federated Queries …

… are regular relational queries but submitted to a single specially-enabled DB2 instance that involves objects at remote relational or non-relational data sources. It is transparent to the client application where the data resides.



Federated Queries …

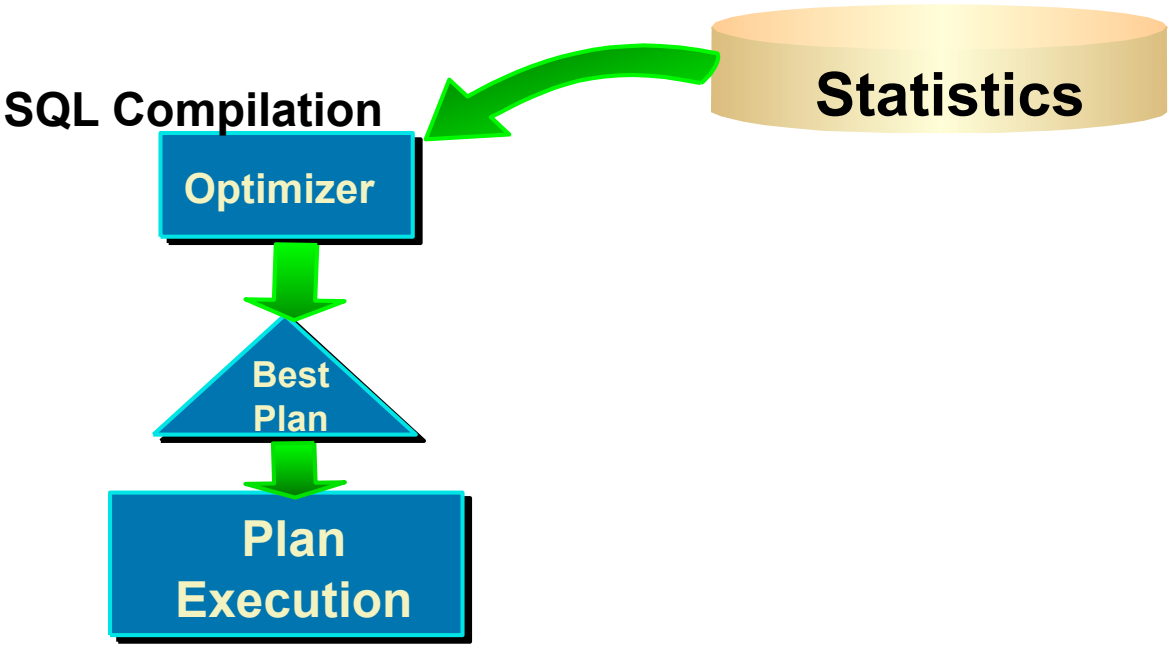
… have a local plan portion and a number of remote sub-statements which are sent to the remote data sources. The query execution is typically divided between the federated DB2 instance and the remote sources.



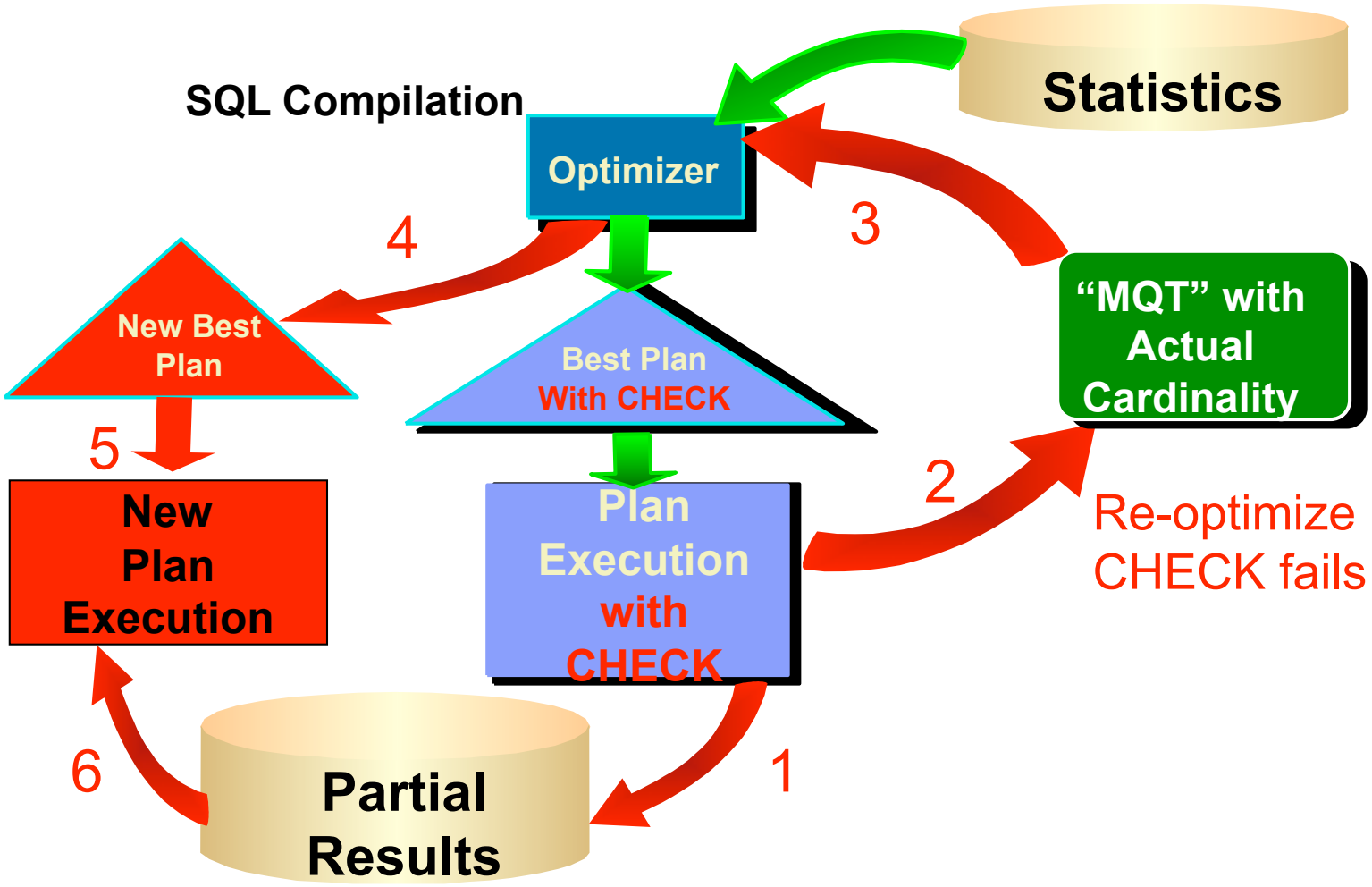
Progressive Query Optimization (POP) …

… is a method to correct knowledge in the query plan that was not available during query compile time. The goal is to find a more optimal query plan using this additional knowledge and trigger re-optimization.

Traditional Query Processing



Query Processing with POP



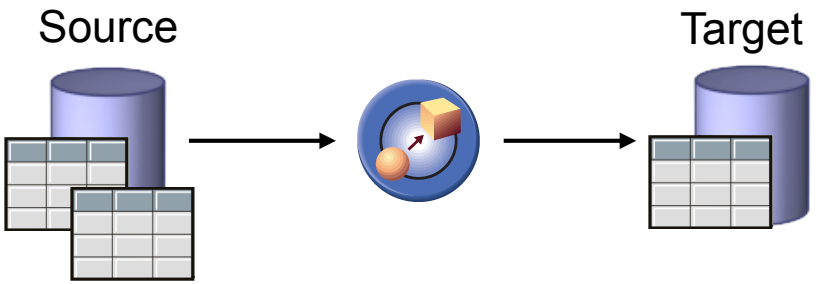
Sample Projects I worked on

Transformation Rule Discovery through Data Mining

Mary Roth – IBM SVL
Holger Kache –IBM SVL
Yannick Saillet – IBM Boeblingen Lab

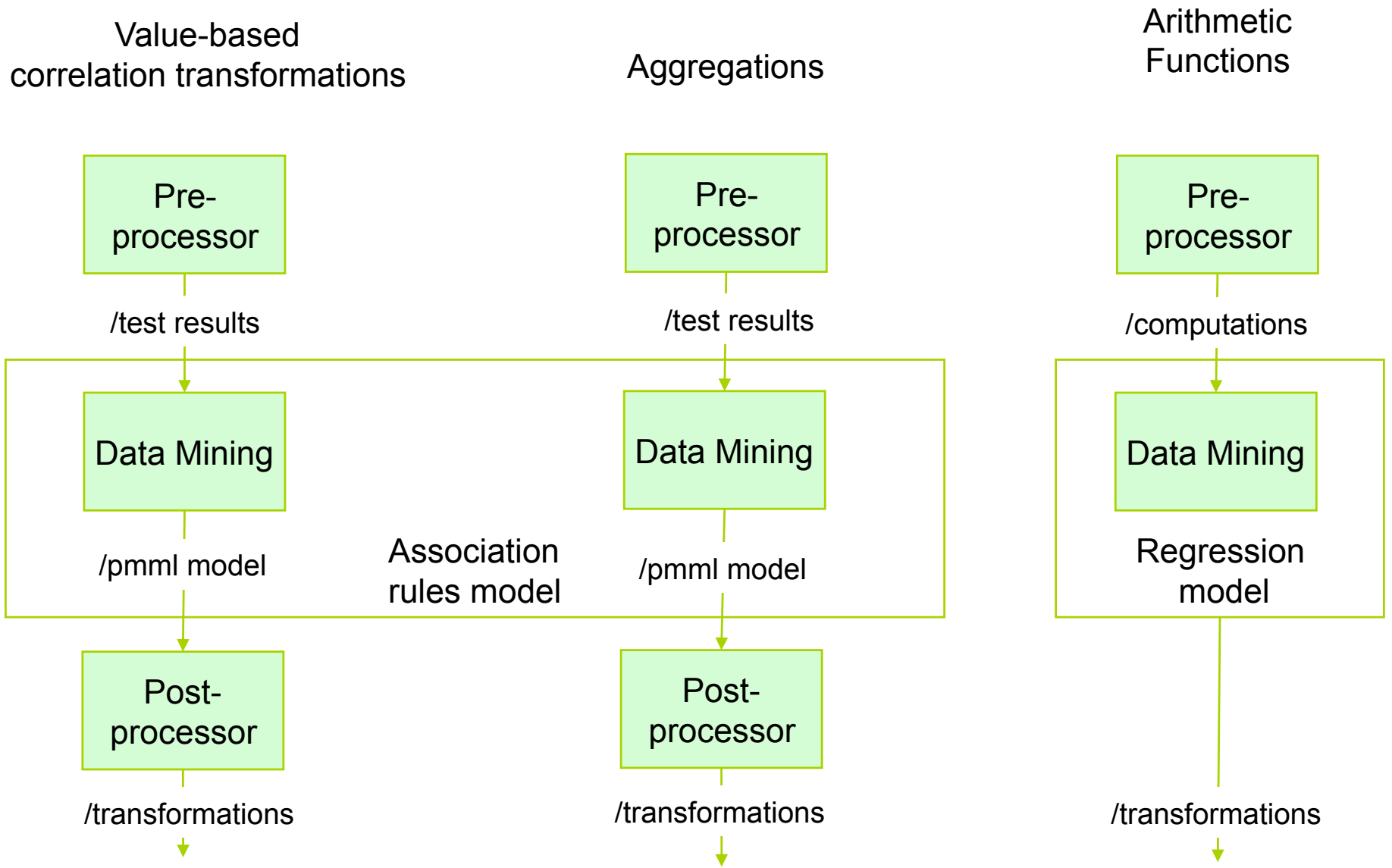
Published at NTII 2008
Aukland, New Zealand

Motivation



- Software programs transform
  - Source data schema into target data schema
  - Source data values into target data values
- Transformation logic could get lost
- To recover lost transformation logic
  - Schema transformations are found using metadata based schema mapping
  - Data transformations are found using data driven rule discovery
- Common data transformations can be grouped into
  - Value based correlation transformations (e.g. T.address = S1.address : “” : S2.zip)
  - Aggregations (e.g. T.balance = sum(S.balance) grouped by S.accountID)
  - Arithmetic transformations (e.g. T.birthyear = 2008 - S.age)
- Data driven rule discovery can be understood as data mining problem

Discovery Process



How did studying at the BTU prepare me for the work

	Required key skills	***Acquired at BTU***	***Other resources***
Hard skills	Database technology	Database courses	
	Programming C/C++	Research assistant job	
	Compiler technology	(Compiler courses)	Literature
	UNIX	Faculty infrastructure	IBM training
	Graph theory	Algorithms courses	
	Distributed computing	(Distributed systems course)	Literature
	Engineering process, Software modeling	Software Engineering courses	
	Data Warehouse, Mining		Literature
Soft skills	Technical writing	Study and master thesis	
	Technical presentations	Software Engineering hands-on training	IBM training
	Project management		IBM training
	Team leadership		IBM training
	English		Advanced education

IBM Academic Initiative for
Information Management Software

Who can participate in this program?

- Faculty and research professionals at accredited institutions of higher education.
- Membership is granted on an individual basis.
- There is no limit on the number of faculty members at an institution that can join.

What is defined as an accredited institution?

- University or college that offers education leading to a nationally-recognized qualification
- Research institution or consortia comprised of accredited institutions
- Primary, elementary or secondary school in which education is the principal objective leading to nationally-recognized qualifications

How much does it cost to join?

- Membership is free

What types of resources are available?

- Software
- Course material
- 50% Certification Discount Vouchers
- Certification Preparation Tutorials
- Faculty Education Classes
- Additional Learning Resources

How can resources gained through this program be used?

- Teaching in the classroom and non-commercial research

- **Get Started with IBM Academic Initiative**

- **Information Management Resources**
  - Self-serve membership resources
    - IBM software
    - Certification vouchers & preparation tutorials
    - Course material (e.g (CF41) DB2 for LUW Performance Tuning and Monitoring Workshop)
    - Faculty education
  - IBM facilitated resources for AI members
    - Proctored certification
    - Faculty enablement
    - AI Ambassador – guest speaker
    - contests

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IBM Academic Initiative

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Updated 17 May 2009

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