Automatic Composition of E-services That Export Their Behavior

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Story of the paper

Very nice example of merging practical applications with theoretically well-founded techniques

- **Massimo** at that time was a post-doc on **middleware technologies** and orchestration of services
- **Giuseppe**, **Diego** and **Maurizio** were actively working on **foundations** of data integration and query rewriting
- **Daniela** was a brilliant PhD student, very open minded, looking for a subject to get in love with

This happened during autumn 2002 ☺

Story of the paper

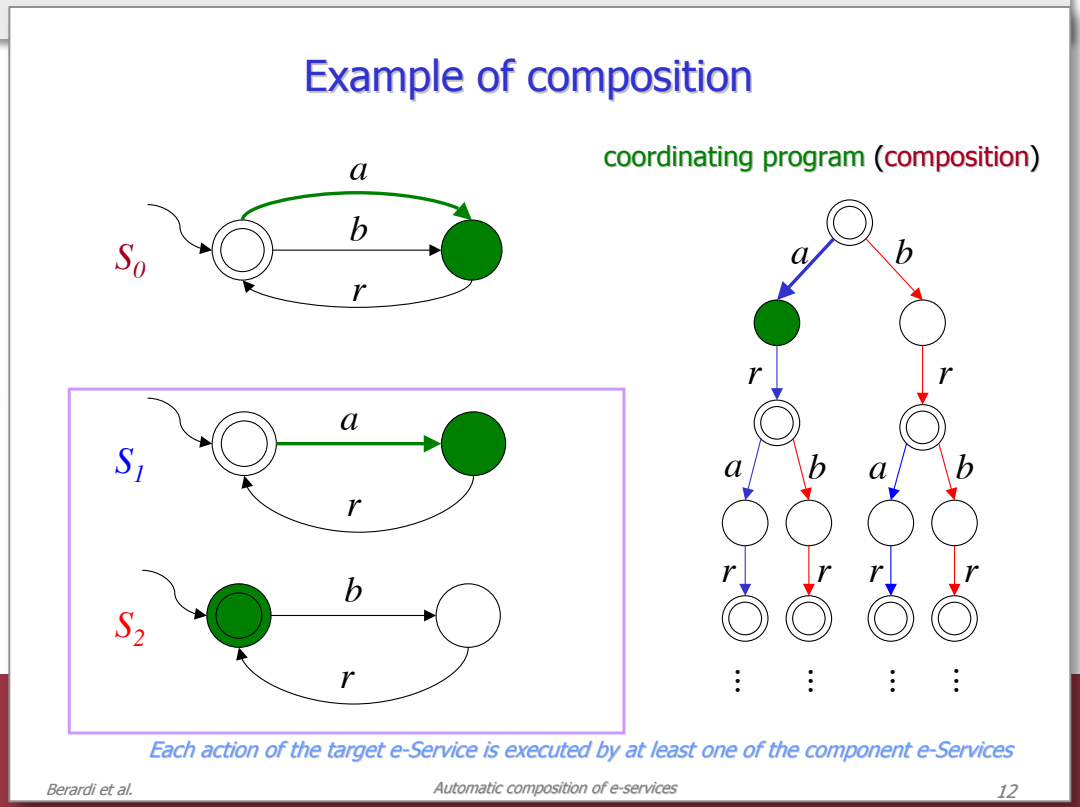
A key idea emerged:

*Service composition can be though of as a form of **integration**:*

Reuse** and **repurpose fragments** of the **computations** provided by the **available services** to realize a **new target service

We submitted to ICSOC 2003!

A slide from Daniela's original ICSOC'03 presentation



From that seminal paper

- Initial prototype [IJCIS 2005]
- Different variants (angelic and devilish non-determinism) investigated [ICSOC 2004], [ICSOC 2005], [ICWS 2006]
- Data considered with Rick Hull [VLDB 2005]

Rick actually invented the name "Roman Model" to describe our approach

- More general problems of service/behavioral composition, solved with simulation and synthesis techniques [IJCAI07], [AAAI07], [KR08], [ICSOC08], [ICAPS09], [AAAI10], [AAAMS10], [JELIA12], [IJCAI13], [AIJ13]
- Many other scientists directly involved in the research
  Rick Hull, Cagdas Evren Gerede, Jianwen Su, Anca Muschll, Igor Walukiewicz, Sebastian Sardina, Fahima Cheikh, Fabio Patrizi, Farouk Toumani, Thomas Stroder, Morri Pagnucco, Yoad Lustig, Moshe Vardi, Nitin Yadav, Riccardo De Masellis, Paolo Felli, Claudio Di Ciccio, Mario Caruso, Ettore Iacomussi, Vincenzo Forte

From that seminal paper

- 2nd effective prototype, based on TLV, implemented in 2010 – 2011 and effectively used in the SM4All EU project for composing smart home services

- Today taught in the course “Service Integration” in Sapienza with the use of the software tool

- Several nephews of it, e.g., the idea of planning programs
  [AAMAS10], [ICAPS11], [CoopIS12], [ICAPS13]

- Interest in dealing with data as first-citizen in services/business processes: the ACSI EU project and follow-ups

Authors Today

Giuseppe, **Maurizio** and **Massimo** are still at Sapienza University of Rome

Diego moved to University of Bolzano/Bozen

Daniela works in the private sector (Altran Italia), and has just “released” her second kid

Thank You !!!