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Actual Paradigms of Distributed Software Development: Services and Self Organization

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Abstract of a keynote speech

State-of-the-art development of distributed software systems is, among other software development techniques, fundamentally based on the paradigm of distributed “software services”. Such services may already exist or may be newly developed for specific application purposes. They are able to interact – also in open and heterogeneous distributed software environments – based on standardised interfaces and inter-connection protocols as, e.g., provided by related “Web Services” standards.

On the application side, a service-based software development paradigm reflects directly modern (e.g. business) scenarios which are increasingly structured as sets of distributed co-operating entities. Such applications often involve many and heterogeneous services from various sources – both internally as well as from external sources. Based on such elementary services, “business procedures” implement more complex business semantics by composing services – even in dynamically changing environments – according to predefined (functional as well as non-functional) application needs.

If, finally, such service become more “independent” and act “autonomously” in order to achieve given (abstract) goals and characteristics, services as well as business procedures may increasingly become “self-organised” according to another actual distributed software paradigm.

Based on such an approach, the EU Network of Excellence on “Soft-ware Services and Systems” (S-Cube) coordinates and conducts European research in the area of service-oriented development of distributed software and applications. It aims at establishing agile and holistic service engineering and adaptation principles, techniques and methods to foster innovation for preparing new service technologies integration by establish a unified and multidisciplinary research community.