

Service-Oriented Device Ecology Workflows

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Abstract. We address the need for a high level of abstraction to describe how devices should work together and to manage their interaction. Our perspective is from workflow, where business processes are managed by a workflow system that assigns tasks, passes them on, and tracks the progress. One can envision device ecologies for different purposes and situations but this paper focuses on a device ecology example within the home environment. We illustrate how a workflow model can be applied to describe and manage device ecologies – in particular, we treat devices as Web services and utilize the Business Process Execution Language for Web Services (BPEL4WS) for describing workflows in device ecologies. We also show how the DySCo workflow algebra can be employed to model device ecology workflows and discuss how to model the impact of these workflows on devices' observable states. The result of this work is a starting point for a workflow based programming model for device ecologies.