

## INTISARI

### **PENERAPAN *SERVICE ORIENTED ARCHITECTURE* (SOA) MENGGUNAKAN *ENTERPRISE SERVICE BUS* (ESB) SEBAGAI MEDIATOR INTEGRASI SISTEM INFORMASI**

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Penerapan *web service* yang secara *point-to-point* dinilai sudah tidak relevan jika jumlah *service* yang digunakan semakin banyak dan kompleks. Standar penerapan *web service* yang berbeda-beda juga sering menjadi masalah apabila dibutuhkan integrasi dan komunikasi antar *web service*.

Salah satu cara yang dapat diterapkan untuk menyediakan pengelolaan integrasi sistem informasi antara lain dengan menggunakan *Enterprise Service Bus* (ESB). ESB merupakan infrastruktur perangkat lunak yang dapat menjadi solusi dari masalah kompleksitas integrasi *n-to-n*. Konsep ESB sangat mendukung implementasi *Service Oriented Architecture* (SOA).

Penelitian ini membahas mengenai penerapan ESB dilingkungan pemerintahan khususnya di Pemerintah Kabupaten Sleman. Beberapa fungsionalitas ESB seperti *routing* (pengalamanan/rute), *orchestration* (*orkestrasi komponen web service*) dan *transformation* (transformasi pesan dan protokol *service*) diterapkan untuk membantu aparat pemerintah dalam menyelesaikan permasalahan integrasi baik antar instansi pemerintah (G2G) maupun dengan masyarakat (G2C).

Hasil pengujian menunjukkan bahwa *Enterprise Service Bus* (ESB) dapat digunakan sebagai mediator integrasi data dan sistem informasi khususnya pada proses integrasi yang ada di lingkungan pemerintah Kabupaten Sleman. Selain itu hasil pengujian performansi menunjukkan bahwa rata-rata waktu eksekusi untuk semua operasi *service* sebesar 0,085 detik. Selanjutnya setiap detik rata-rata melakukan eksekusi sebanyak 11,99 kali dengan data sebesar 15746,86 *byte* atau setara dengan 15,38 KB. Hasil tersebut menunjukkan bahwa waktu eksekusi dianggap kecil sehingga *service* yang dikembangkan dianggap tidak akan mengganggu proses transaksi yang sedang berjalan.

Kata Kunci : *Enterprise Service Bus* (ESB), Integrasi Sistem Informasi, E-Government, *Web Service*

## **ABSTRACT**

### ***THE IMPLEMENTATION OF SERVICE ORIENTED ARCHITECTURE (SOA) USING ENTERPRISE SERVICE BUS (ESB) AS THE MEDIATOR OF INFORMATION SYSTEM INTEGRATION***

by

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The Implementation of web services using point-to-point method considered to be irrelevant weather the number of services are growing up rapidly and more complex. In the other hand, the differences of web service implementation standard is also being a serious problem when the integration and communication among web services are needed.

One of the way that can be applied to provide management information system integration among others is the implementation of Enterprise Service Bus (ESB). ESB is a software that can be the solution of n-to-n integration complexity problem. ESB concept strongly supports the implementation of Service Oriented Architecture (SOA).

This research will discuss about the implementation of ESB in government area, especially in Sleman, sub-district of Daerah Istimewa Yogyakarta local government, Indonesia. Some of ESB functionality such as routing (route the service), orchestration (orchestration among web services components) and transformation (message and service protocol transformation) are applied to assist government officials in order to solve the integration problems, both of government to government (G2G) as well as government to public (G2P) integration.

The results show that the Enterprise Service Bus (ESB) can be used as a mediator data integration and information systems specially integration process in Sleman sub-district Government. Beside that, the results of performance testing shows that the average execution time (AET) for service operations amounted to 0,085 seconds. Furthermore, the system has an average amount of execution about 11.99 times and it produces the data about 15746.86 bytes or equivalent to 15.38 KB per second. These results indicate that the execution time is considered to be small enough so that the services developed considered will not interfere the process of the transactions.

**Keywords :** *Enterprise Service Bus (ESB), System Information Integration, E-Government, Web Service*