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Intelligent network services through active flow manipulation

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Abstract

A significant challenge in today's Internet is the ability to efficiently introduce intelligent network services into commercial high-performance network devices. This paper tackles the challenge by introducing the active flow manipulation (AFM) mechanism, a key enabling technology of the programmable networking platform Openet. AFM enhances the control functionality of network devices through programmability. With AFM, customer network services can exercise intelligent network control by identifying specific flows and applying particular actions thereby altering their behavior in real time. These services are dynamically deployed in the CPU-based control plane and are closely coupled with the silicon-based forwarding plane of the network node, without negatively impacting forwarding performance. The effectiveness of our approach is demonstrated by several experimental applications on a commercial network node

Index Terms

Inspec

Controlled Indexing

[Internet](#) [intelligent networks](#) [telecommunication control](#) [telecommunication services](#)

Non-controlled Indexing

[CPU-based control plane](#) [Internet](#) [Openet](#) [active flow manipulation](#) [customer network services](#) [high-performance network devices](#) [intelligent network control](#) [intelligent network services](#) [network node](#) [programmable networking platform](#) [silicon-based forwarding plane](#)

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DOE Thesaurus Terms

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