DAG Design and Tradeoff for Full Live Virtual Machine Migration over XIA Network

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Abstract : Traditional TCP/IP network is showing lots of shortages and research for future networks is becoming a hotspot. FIA (Future Internet Architecture) and FIA-NP (Next Phase) are supported by US NSF for future Internet designing. Moreover, virtual machine migration is a significant technique in cloud computing. As a network application, it should also be supported in XIA (expressive Internet Architecture), which is in both FIA and FIA-NP projects. This paper is an experimental study aims at verifying the feasibility of VM migration over XIA. We present three ways to maintain VM connectivity and communication states concerning DAG design and routing table modification. VM migration experiments are conducted intra-AD and inter-AD with KVM instances. The procedure is achieved by a migration control protocol which is suitable for the characters of XIA. Evaluation results show that our solutions can well supports full live VM migration over XIA network respectively, keeping services seamless.