Analyzing the cost of function shipping system calls in multi-OS environments

Categories and Subject Descriptors

[]

General Terms

Keywords

1. INTRODUCTION

[No current OS handle exascale level of parallelism, processor and system heterogeneity, active power, resiliency, etc. Multi-OS approach (Argo, FusedOS, McKernel,..) with lightweight OS instances (computation) next to compute Linux (legacy apps and data analytics) and full Linux (node services) plus full OS on I/O nodes. Need to understand which services run where. Our tracing and classification methodology. Hardware and software setup. Results. Conclusions.]

2. BACKGROUND AND RELATED WORK

[OS for HPC? CNK, K42, Plain9, Catamount, ...]
[Multi-OS approach: FusedOS, Argo, McKernel,...]
[Virtualized approach: Hobbes, Kitten, ...]

3. TRACING INFRASTRUCTURE

[Describe tracing system calls and data analysis.]

[Noise injection to emulate the effect of function shipping sys calls to different OSs]

4. EXPERIMENTAL SETUP

[Describe hardware (Intel Xeon + MIC) and software (ICC, Intel MPI, ...)] [Brief description of applications and their characteristics, propgramming models, etc (Table...)]

5. EXPERIMENTAL RESULTS

[Number and frequency of system calls, syscall exec time, aggregated results, noise injection, sensitivity studies varying latencies, ...]

6. CONCLUSIONS AND FUTURE WORK

[Here we conclude the paper..]