

Taskserver Design

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System Design & Implementation, 2008

Outline

1

Design

- System Components
- Sawmill Inspired Data Spaces
- Stack Positioning

2

Interface

- Process management
- Settings

3

Statistics

- Statistics over virtual Filesystem

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System Components

L4 Microkernel

Sigma 0

Anonymous Memory Server

Syscall Server

Data Space Providers

ELF Loader

Fileserver

Taskserver

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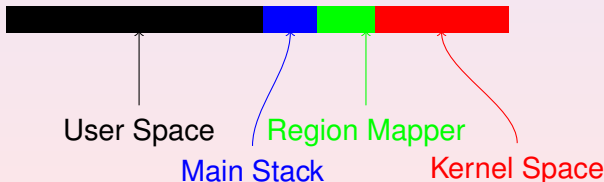
3

Statistics

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Sawmill Inspired Data Spaces

- Every address space has got it's own managing thread, called *region mapper*.
- *region mapper* resides at the end of user address space, just below kernel.
- *region mapper* holds mapping between *VM Region* and *Data Space Provider*



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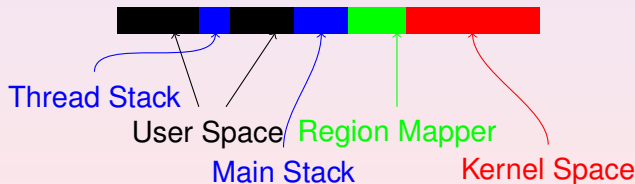
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Stack Positioning

- *Main program stack* is created just below *Region Mapper*, growing down, towards *heap*
- For every additional thread, *stack space* is allocated from *heap*, surrounded by *read only pages* to detect overflow
- *Thread stacks* are created by *region mapper*



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New

Fork

Exec

Kill

StartThread

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SetStatisticInterval

SetTimeslice

SetPriority

SetPreemptionDelay

Ping

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Ping