Process and Thread State Diagrams
Basic Transitions

New

Ready

# ready queues may be >1

Interrupt/Signal

Dispatched by system

Running

Blocking I/O or Wait requested

Exit request

Waiting

Terminated

© 2004, D. J. Foreman
Java Thread States

- **new**
- **Ready/Running**
- **waiting**
- **Terminated**
UNIX Process States

A = system call or interrupt
B = interrupt/return
C = RAM available
D = no RAM

A = system call or interrupt
B = interrupt/return
C = RAM available
D = no RAM

User Running

Pre-empted

Ready in memory

Kernel Running

Waiting in memory

Waiting Swapped

Ready Swapped

New

Terminated

Blocking I/O or Wait requested

swap in/out

int/sig
Windows Thread States

- New
- Runnable
  - CPU scheduled
  - preempted
- Ready
- Running
  - Block requested
- Page/stack wait
- Waiting
- Terminated

Not runnable
Linux Process/Thread States

- **Ready**
- **Running**
- **Terminated**
- **Uninterruptible**
- **Interruptible**
- **Stopped**

* Requires action from another process

- Any signal or event
- Signal
- H/W

ULT=kernel-level process

© 2004, D. J. Foreman