What To Do When Your Device Depends

on Another One

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Devices Depend On One Another

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Simple Case: Tree Topology

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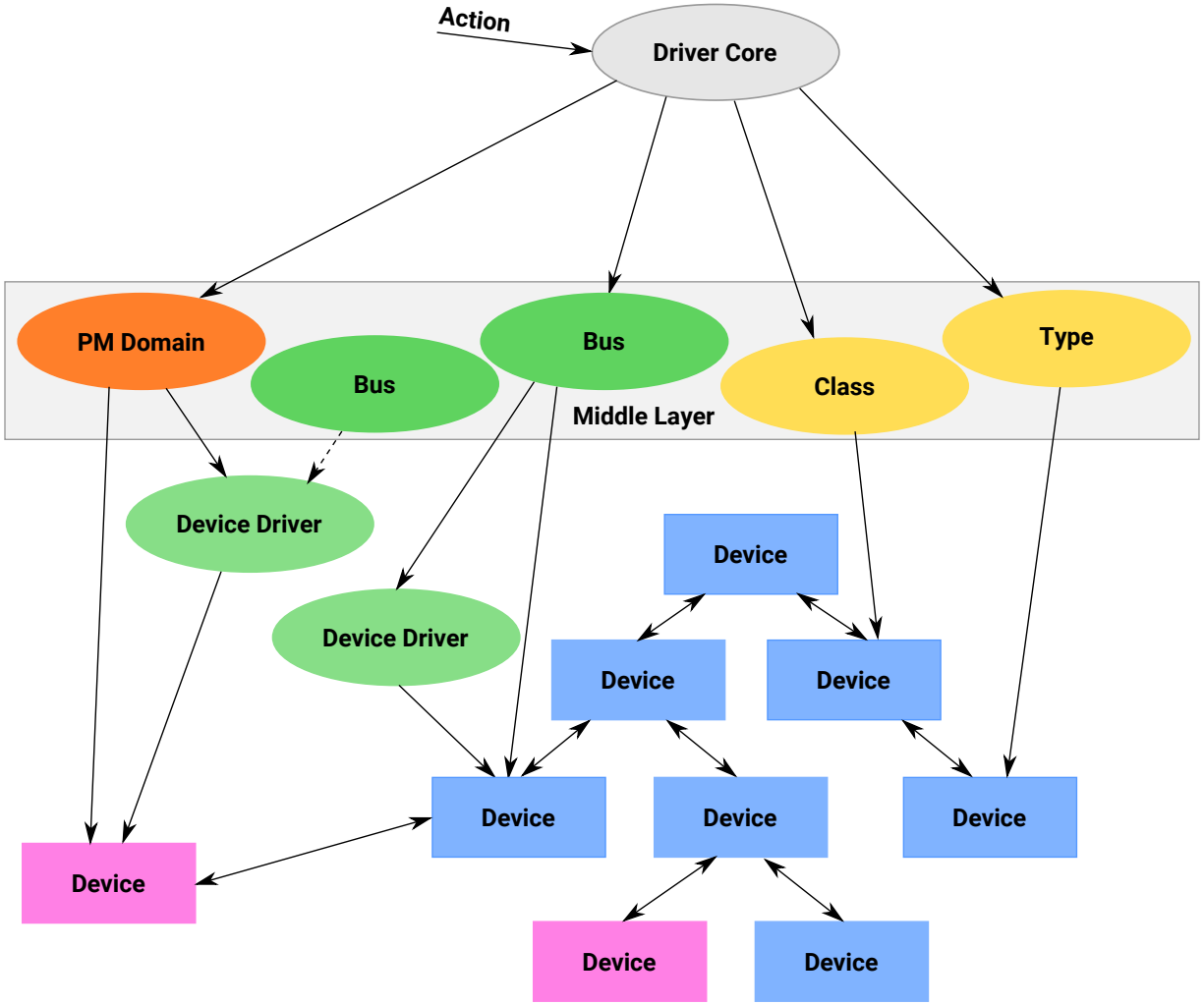
Example: Driver Core and Power Management



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Example: Driver Probe Ordering

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Idea: Light-weight Solution On Top Of What Is There

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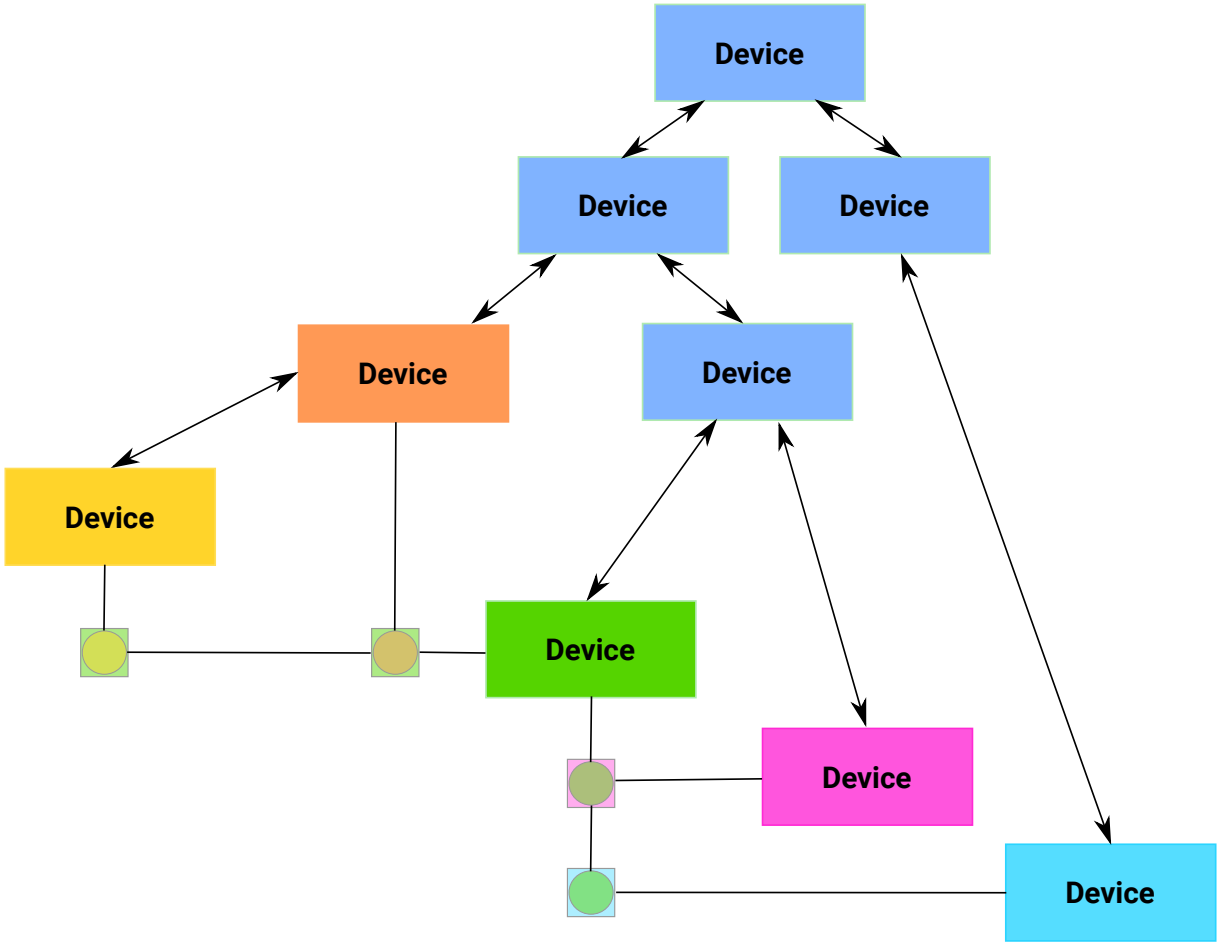
Device Links Data Structure



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System-wide PM And Shutdown Ordering

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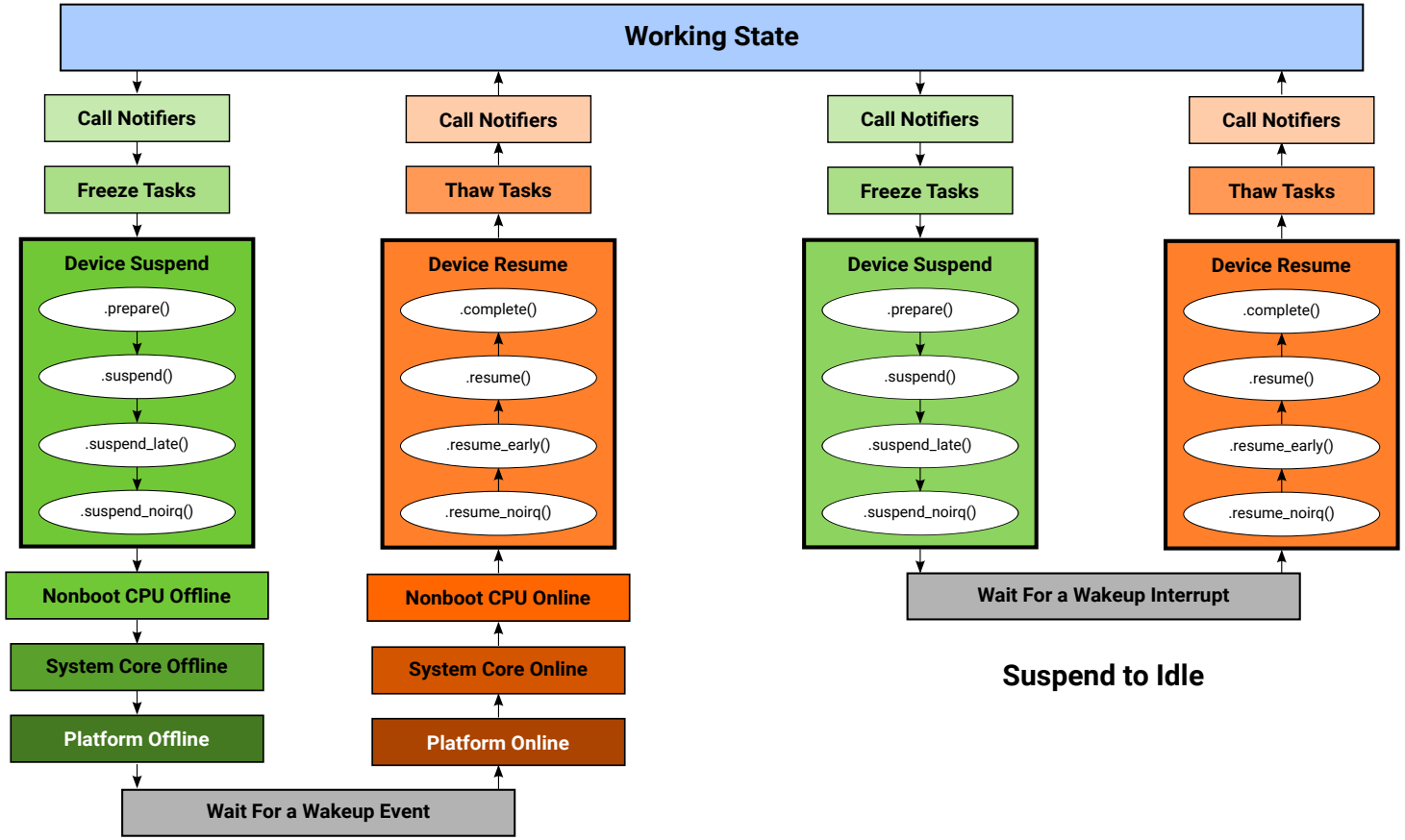
Asynchronous Execution Of System-wide PM Callbacks



Platform-based Suspend

Suspend to Idle

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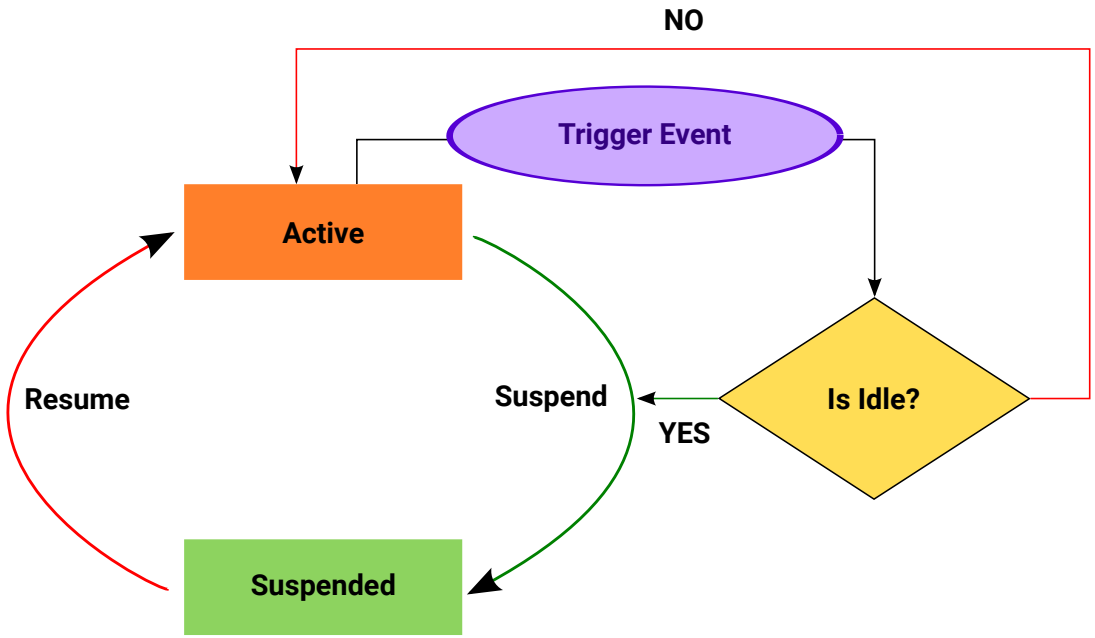
PM-runtime Ordering



- `DL_FLAG_PM_RUNTIME` (+ `DL_FLAG_RPM_ACTIVE`)

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Device Links Usage In Power Management

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Managed Device Links

- DL_FLAG_AUTOREMOVE_CONSUMER
- DL_FLAG_AUTOREMOVE_SUPPLIER
- DL_FLAG_AUTOPROBE_CONSUMER

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Stateless Device Links

- `DL_FLAG_STATELESS`

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Adding Device Links

```
struct device_link *device_link_add(struct device *consumer,
                                    struct device *supplier,
                                    u32 flags);
```

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Removing Stateless Device Links

```
void device_link_del(struct device_link *link);
void device_link_remove(void *consumer,
                        struct device *supplier);
```

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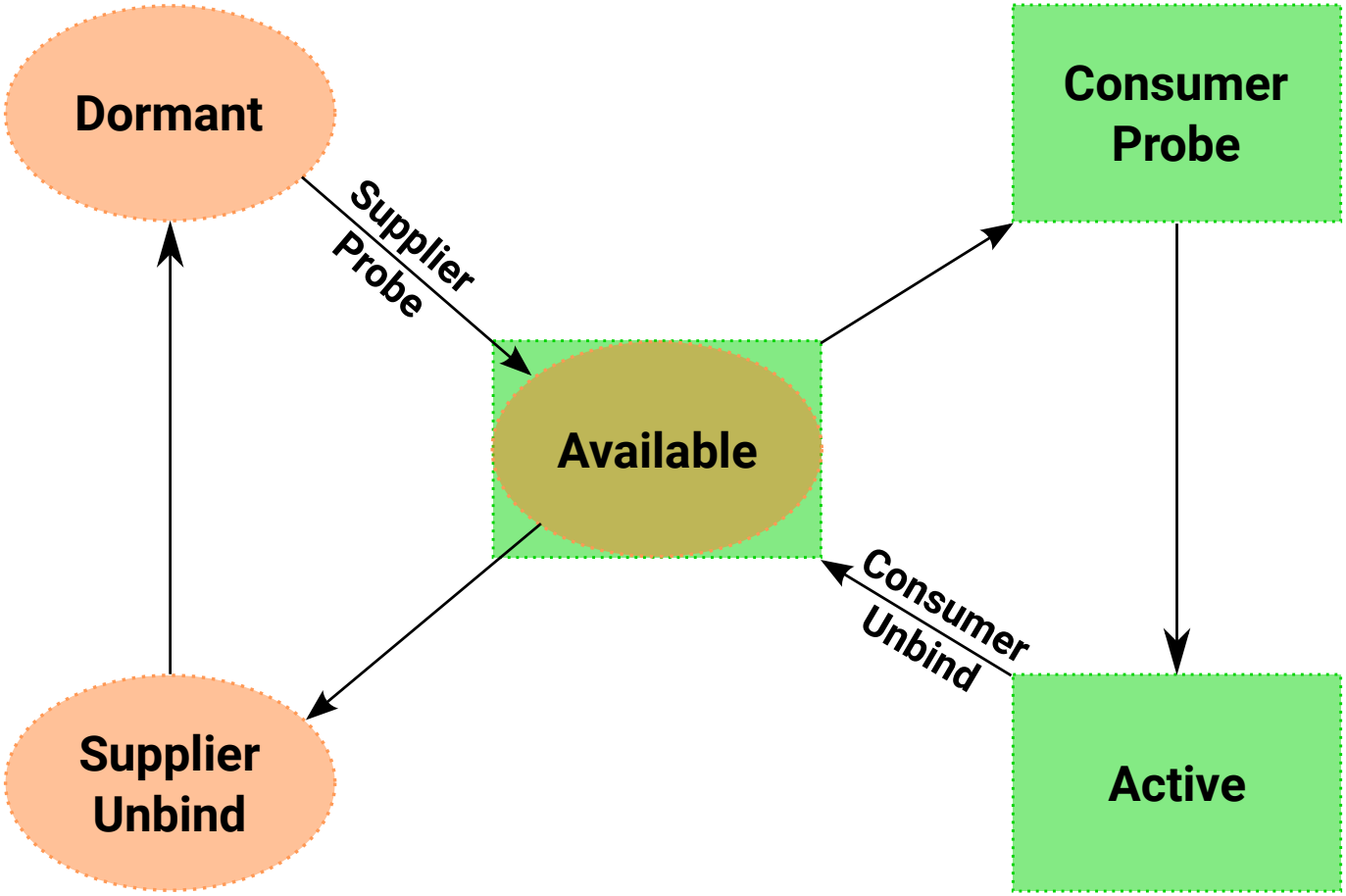
Managed Device Link State Machine



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Rules Regarding Device Link Flags

1. `STATELESS` bumps up the reference counter.
2. Passing `STATELESS` along with link management flags is invalid.
3. `AUTOREMOVE_SUPPLIER` overrides `AUTOREMOVE_CONSUMER`.
4. "No management flags" overrides both autoremove flags.
5. Passing `AUTOPROBE_CONSUMER` along with autoremove flags is invalid.
6. `RPM_ACTIVE` without `PM_RUNTIME` is ignored.
7. `PM_RUNTIME` can always be set and is never unset.

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Questions? Comments? Concerns?

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References

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