

TF-A Tech Forum

arm

HOB proposals

Manish Pandey & Madhukar Pappireddy

03-June-2021

Information passing through boot phases (TF-A to U-boot/UEFI)

- Proposal 1: Always pass a pointer to the device tree blob through the GP register and capture the pointer to the HOB list as a property of a node that is uniquely identifiable by the downstream boot phase. This needs to define a device tree binding such that producer and consumer agree on the information passed.
- Proposal 2: Pass a pointer to a generic container through the GP register that can be interpreted appropriately by both boot loaders(i.e., producer and consumer of the boot info). This container can either be a dtb or a HOB list which can be simply inferred by checking for a magic header that indicates if the buffer appears to be a flattened device tree.
- Proposal 3: Pass a pointer to a HOB list with 32-bit tags and simple C structs. If needed, put a DT in the HOB list and add the info there. The DT can use the normal compatible string which is a proven solution to the identification problem.

Complete Boot Flow proposals

- Assuming proposal 1 in previous slide the boot flow will be different, to align with existing differences, among segments
- Client Segment:
 - TF-A creates HOB list and adds base address in NTFW Config DT node
 - U-boot parses and consumes/appends HOB list
 - U-boot appends HOB list address in NW Config DT node.
 - No major change
- Infra Segment:
 - TF-A creates HOB list and adds base address in NTFW Config DT node
 - UEFI parses and consumes/appends HOB list (UEFI's capability to parse DT?)
 - UEFI adds HOB list in System tables passed to Linux(along with ACPI/SMBIOS table)
 - Changes required in UEFI and Linux EFI stub
 - May need to reserve a GUID for HOB list

Identification of HOB list entries

- Use simple 64-bit tags. Reserve tag ranges for specific purposes.
- Another suggestion was to use a hybrid approach. Reserve a single tag ID for identifying/constructing a HOB structure that further leverages UUID based identifier. This way, the generic HOB list doesn't need to support UUIDs and can work with tags.
- Even we can distinguish among segments, tag only for Client platforms and Hybrid for Infra platforms.

arm

Thank You

Danke

Gracias

谢谢

ありがとう

Asante

Merci

감사합니다

धन्यवाद

Kiitos

شكراً

ধন্যবাদ

תודה