For each CKD volume that is provisioned (allocated), an initial 21 cylinders metadata subextent or metadata small extent is allocated, and an additional 21 cylinders metadata subextent or metadata small extent is allocated for every 11130 cylinders (or 10 3390 Model 1) of allocated capacity or portion of allocated capacity.

For example, a 3390-3 (that is, 3339 cylinders or about 3 GB) or 3390-9 (that is, 10,017 cylinders or 10 GB) volume takes two metadata extents (one metadata extent for the volume and another metadata extent for any portion of the first 10 GB). A 128 GB FB volume takes 14 metadata extents (one metadata extent for the volume and another 13 metadata extents to account for the 128 GB).

Figure 4-12 shows an illustration of 3 GB and 12 GB FB volumes for a storage pool with large extents. In an extent pool with small extents, there is no concept of sub-extents. You just have user extents, unused extents, and metadata extents.

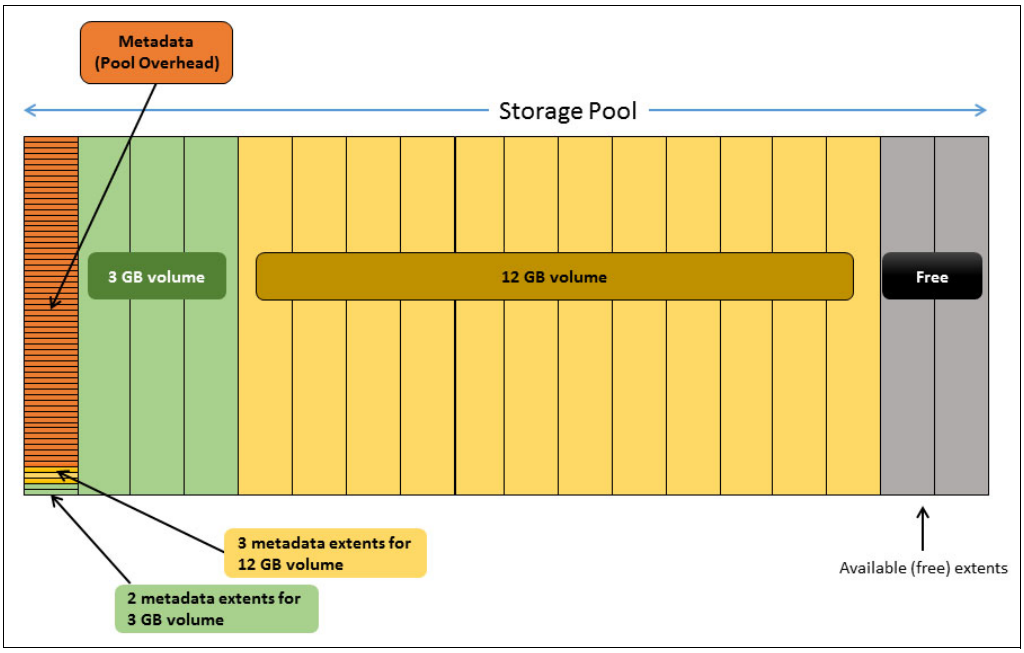

Figure 4-12 Metadata allocation

Metadata extents with free space can be used for metadata by any volume in the extent pool.

With this concept of metadata extents and user extents within an extent pool, some planning and calculations are required. This is particularly true in a mainframe environment where often thousands of volumes are defined and often the whole capacity is provisioned (allocated) during the initial configuration. You have to calculate the capacity used up by the metadata to get the capacity that can be used for user data. This is only important when fully provisioned volumes will be used. Thin-provisioned volumes consume no space when created, only metadata and space will be consumed when data is actually written.

For extent pools with small extents, the number of available user data extents can be estimated as follows:

```
(user extents) = (pool extents) - (number of volumes) - (total virtual
capacity)/10
```

For extent pools with regular 1 GiB extents, when the details of the volume configuration are not known, you can estimate the number of metadata extents based on many volumes only. The calculations are performed as shown: