Scrum: Product Backlog

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Product Backlog Items (PBIs)

- The product backlog is a prioritized list of desired product functionality.
- The product backlog is composed of backlog items referred to as **PBIs**, **backlog items**, or simply **items**.
- PBIs can be of various types:
- Features, which are Items of functionality that will have tangible value to the user or customer;
  - Defects needing repair;
  - Technical work;
  - Knowledge-acquisition work;
  - Any other work the product owner deems valuable.

Main PBI Types

PBI Type	Example
Feature	As a customer service representative I want to create a ticket for a customer support issue so that I can record and manage a customer's request for support.
Change	As a customer service representative I want the default ordering of search results to be by last name instead of ticket number so that it's easier to find a support ticket.
Defect	Fix defect #256 in the defect-tracking system so that special characters in search terms won't make customer searches crash.
Technical improvement	Move to the latest version of the Oracle DBMS.
Knowledge acquisition	Create a prototype or proof of concept of two architectures and run three tests to determine which would be a better approach for our product.

Characteristics of Good Product Backlogs

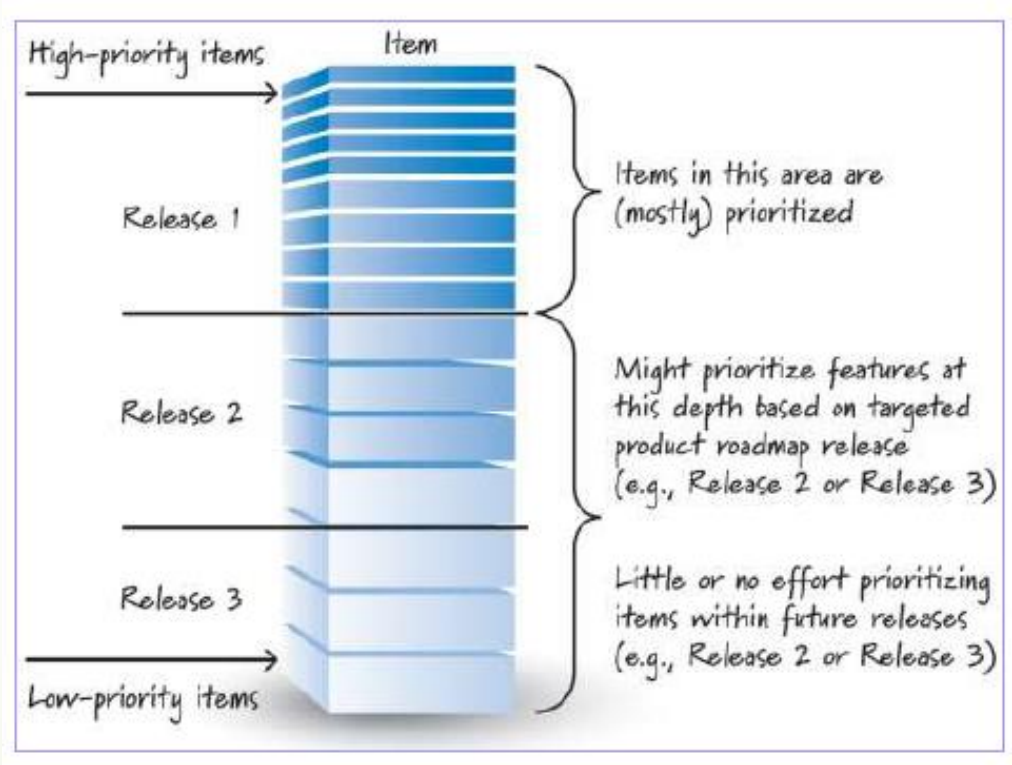
- Four characteristics have been pointed out for good product backlogs, summarized by the acronym **DEEP**.
- **INVEST** criteria are for judging the quality of user stories; **DEEP** criteria are for determining if a product backlog has been structured appropriately:
- **1. Detailed appropriately:**
  - PBIs that we plan to work on soon should be near the top of the backlog, small, and detailed so that they can be worked on in a near-term sprint.
  - PBIs that we will not work on for some time should be toward the bottom of the backlog, larger in size, and less detailed.
  - As we get closer to working on a larger PBI, such as an epic, we will break it down until we get a collection of smaller, sprint-ready stories.
    - Disaggregation should happen in a just-in-time fashion:
    - If we refine too early, we might spend a good deal of time figuring out the details, only to end up never implementing the story.
    - If we wait too long, we will impede the flow of PBIs into the sprint.
    - We need to find the proper balance of just enough and just in time.

Characteristics of Good Product Backlogs

- **2. Emergent:** As long as there is a product being developed or maintained, the product backlog is never complete or frozen.
  - It is continuously updated based on a stream of information: Its structure is therefore constantly emerging over time.
- **3. Estimated:** Each product backlog item has a size estimate corresponding to the effort required to develop the item.
  - The product owner uses these estimates as one of several inputs to help determine a PBI's priority (and therefore position) in the product backlog.
    - Also, a high-priority, large PBI (near the top of the backlog) signals to the product owner that additional refinement of that item is necessary.
  - Estimates must be reasonably accurate without being overly precise.
    - Items near the top of the backlog will have smaller, more accurate estimates.
    - As it may not be possible to provide accurate estimates for larger items, you may choose to use T-shirt-size estimates (L, XL, XXL, etc.).

Characteristics of Good Product Backlogs

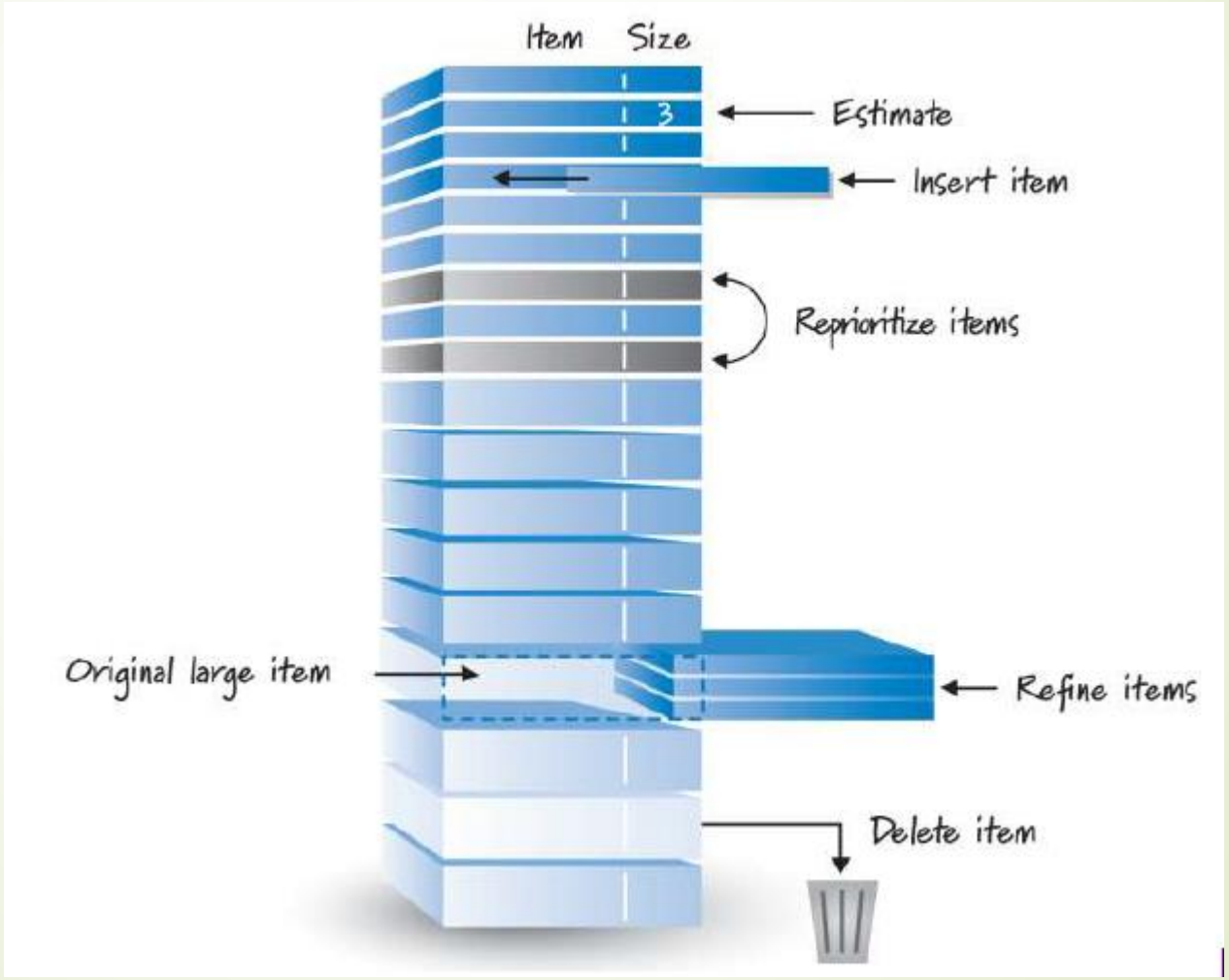
- **4. Prioritized:** Although the product backlog is a prioritized list of PBIs, it is unlikely that all of its items will be prioritized.
  - It is useful to prioritize the near-term items destined for the next few sprints.
  - As new items emerge during development, the product owner inserts them in the backlog in the correct order.



Grooming

- To get a DEEP product backlog, we must constantly manage, organize, and administer the product backlog through a process called **grooming**.
- Grooming refers to a set of three principal activities:
  - 1. Creating and refining (adding details to) PBIs
  - 2. Estimating PBIs
  - 3. Prioritizing PBIs

Grooming: The What



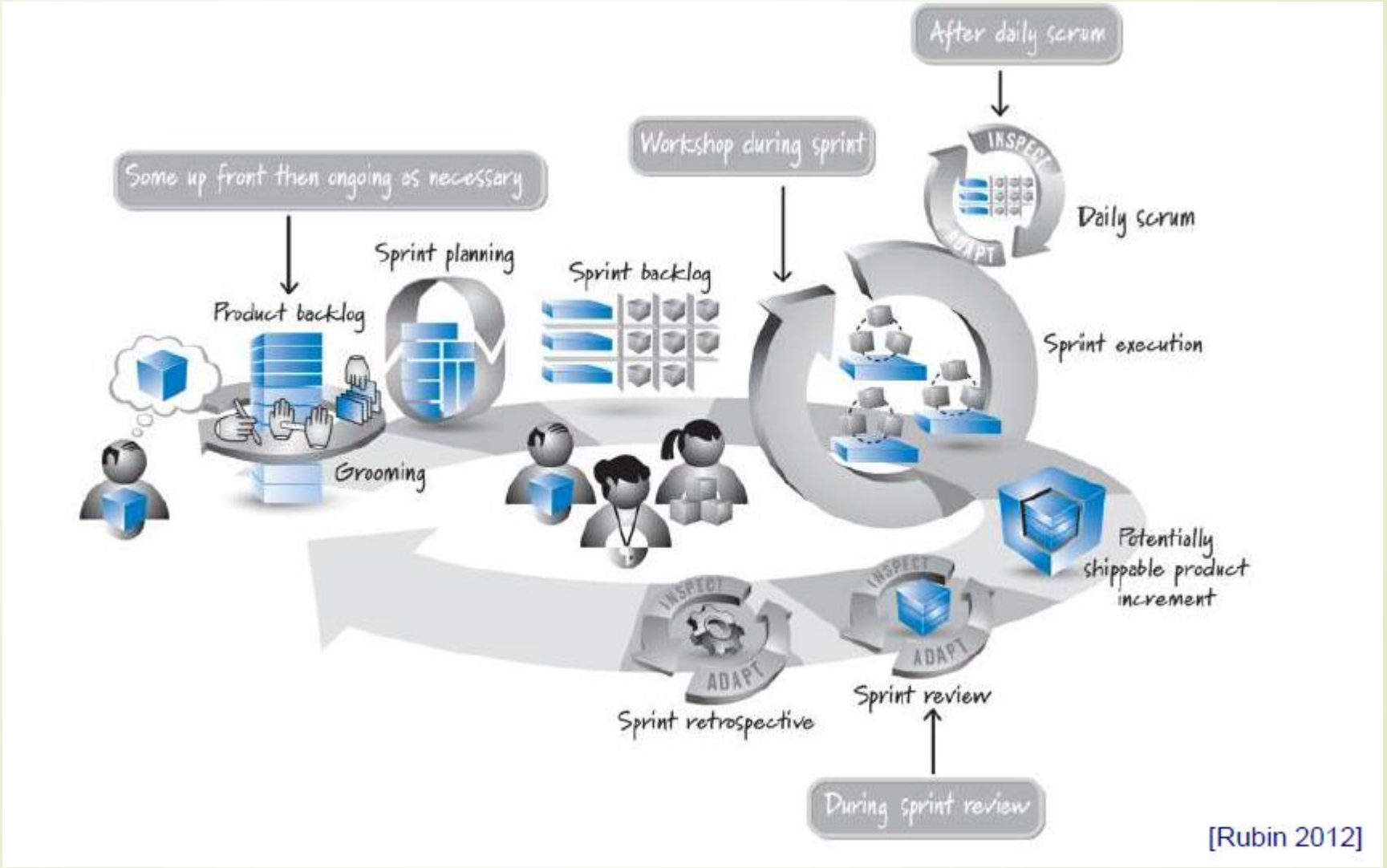
Grooming: The Who

- Grooming is a collaborative effort led by the product owner and involving internal/external stakeholders, the Scrum Master, and development team.
- Ultimately there is one grooming decision maker: The product owner.
- Stakeholders should allocate a sufficient amount of time to grooming based on the nature of the organization and the type of project.
- As a general rule, the development team should allocate up to 10% of its time each sprint to assisting the product owner with grooming.
  - The team will help create/review emergent PBIs as well as progressively refine larger items into smaller items.
  - The team will estimate the size of PBIs and help the product owner prioritize them based on technical dependencies and resource constraints.

Grooming: The When

- Grooming is an **ongoing** activity.
- Initial grooming occurs as part of the release-planning activity.
- During product development, the product owner meets with others at whatever frequency makes sense to perform ongoing grooming.
  - When working with the development team, the product owner might schedule either a weekly or a once-a-sprint grooming workshop during sprint execution.
  - Sometimes teams prefer to spread out the grooming across the sprint, rather than block out a predetermined period of time.
    - They take a bit of time after their daily scrums to do some incremental grooming; this grooming does not have to include all of the team members.
- Teams naturally do some grooming as part of the sprint review.

Grooming: The When



[Rubin 2012]

Definition of Ready

- Grooming should ensure that items at the top of the backlog are ready to be moved into a sprint.
- Scrum teams can formalize this idea by establishing a **definition of ready**.
  - The definition of ready is a checklist of the work that must be completed before a PBI can be considered in a suitable state to be moved into the sprint.
  - A strong definition of ready will substantially improve the Scrum team's chance of successfully meeting its sprint goal.

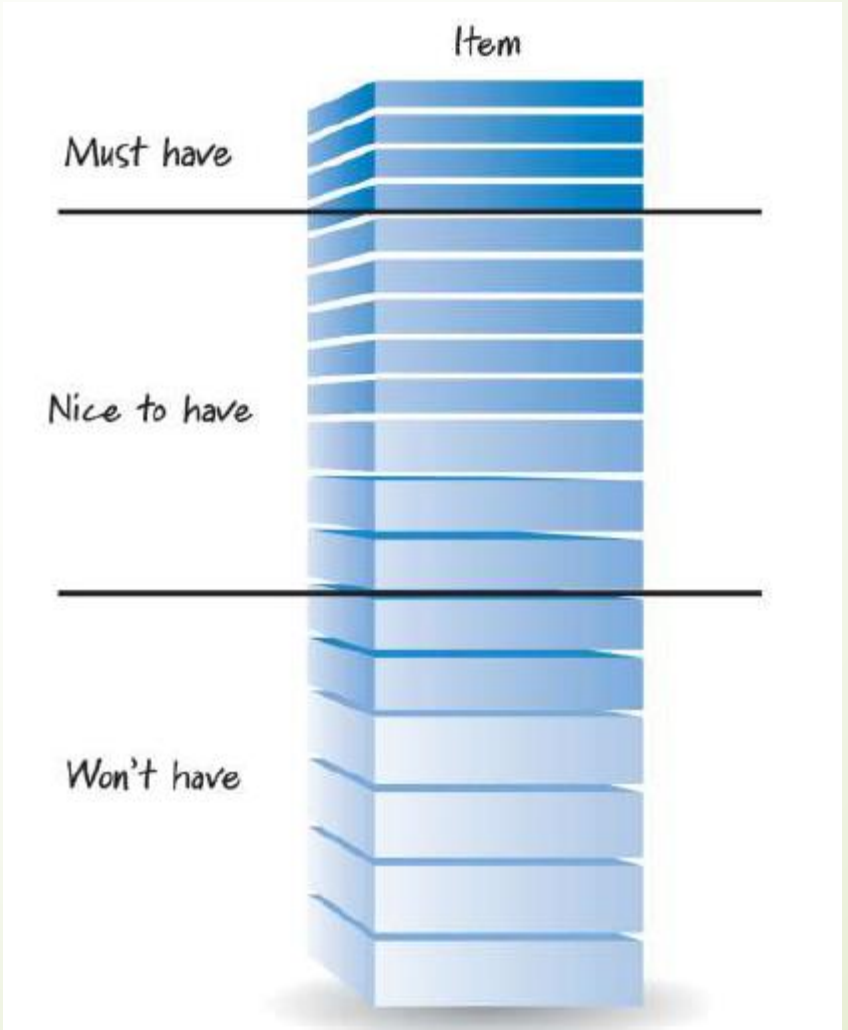
Definition of Ready: Example

	Definition of Ready
❑	Business value is clearly articulated.
❑	Details are sufficiently understood by the development team so it can make an informed decision as to whether it can complete the PBI.
❑	Dependencies are identified and no external dependencies would block the PBI from being completed.
❑	Team is staffed appropriately to complete the PBI.
❑	The PBI is estimated and small enough to comfortably be completed in one sprint.
❑	Acceptance criteria are clear and testable.
❑	Performance criteria, if any, are defined and testable.
❑	Scrum team understands how to demonstrate the PBI at the sprint review.

Product Backlog: Release Flow Management

- The product backlog must be groomed in a way that supports ongoing release planning (the flow of features within a release).
- It is useful to actually partition the product backlog using two lines for each release, and thus partition the backlog into three areas:
  - **Must-have:** Items that we simply must have in the upcoming release or else we do not have a viable customer release.
  - **Nice-to-have:** Items that we are targeting for the next release and would like to include.
  - If, however, we run short of time or other resources, we could drop nice-tohave features and still be able to ship a viable product.
  - **Won't-have:** Items that will not be included in the current release.

Product Backlog: Release Flow Management

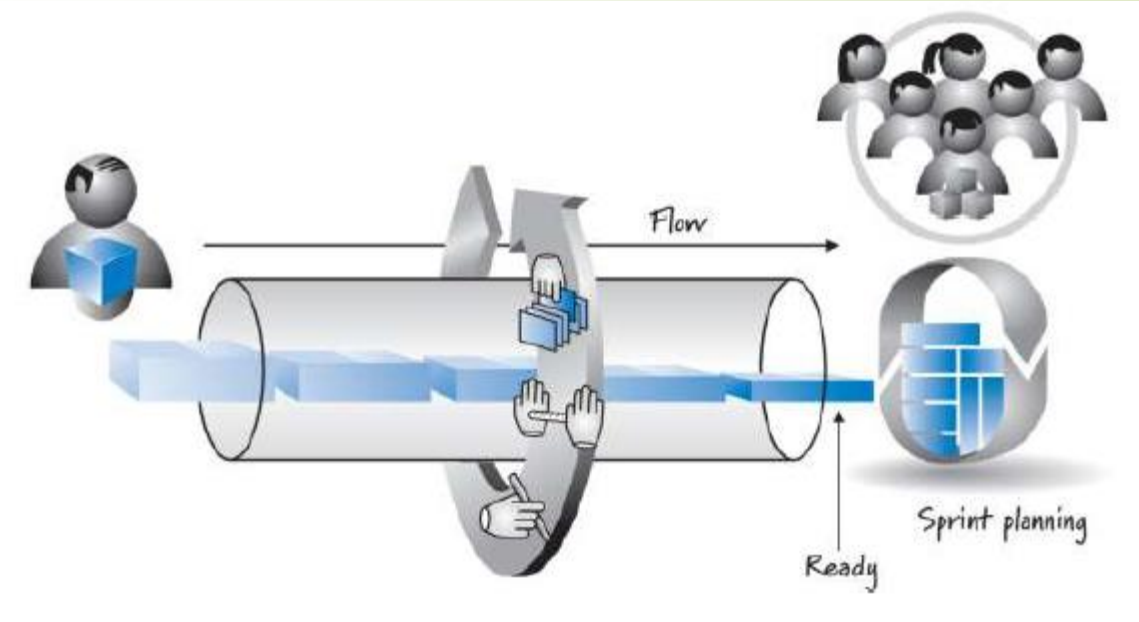


Product Backlog: Sprint Flow Management

- Proper product-backlog grooming is essential for effective sprint planning and the resulting flow of features into a sprint.
- When grooming for good sprint flow, it is helpful to view the product backlog as a pipeline of requirements that are flowing into sprints.
- As items progress through the pipeline and move closer to when they will flow out to be worked on, they are refined through grooming.
- If there is ever a mismatch or unevenness between the inflow and outflow of items, we have a problem.
  - If the flow of groomed items is too slow, eventually the pipeline will run dry and the team will not be able to plan and execute the next sprint.
  - Putting too many items into the pipeline creates a large inventory of detailed requirements that we may have to rework or throw away once we learn more.
- Therefore, the ideal situation is to have just enough product backlog items in inventory to create an even flow but not so many as to create waste.

Product Backlog: Sprint Flow Management

- One approach that Scrum teams use to manage the flow is to have an appropriate inventory of groomed and ready items in the backlog.
- A heuristic that seems to work for many teams is to have about two to three sprints' worth of stories ready to go.
- This extra inventory ensures that the pipeline will not run dry, and it also provides the team with flexibility if it needs to select PBIs out of order.



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